THE IRON AGE

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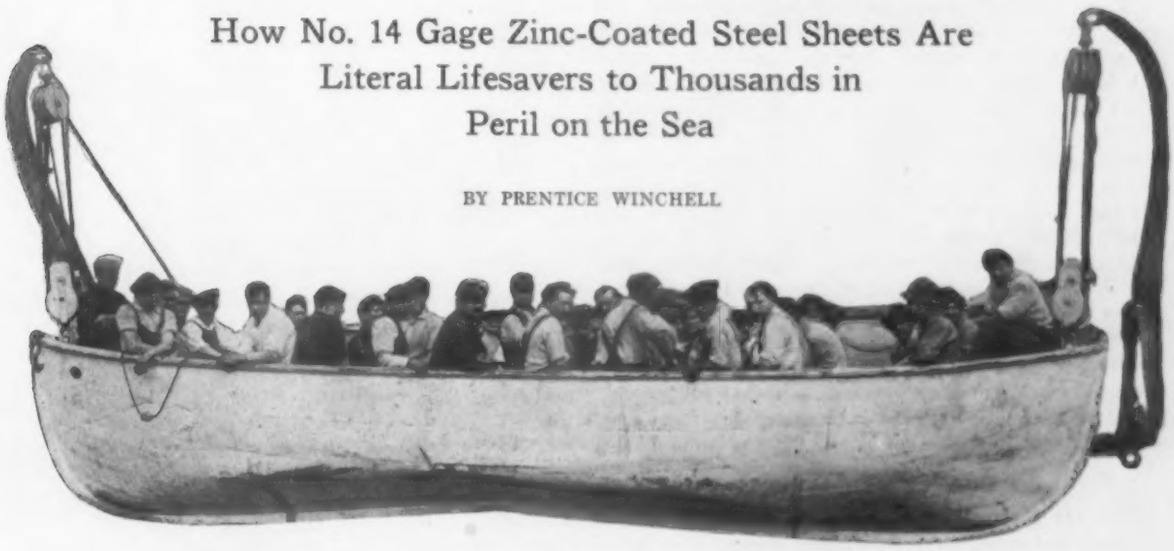
Steel Boats for Safety

How No. 14 Gage Zinc-Coated Steel Sheets Are Literal Lifesavers to Thousands in Peril on the Sea

BY PRENTICE WINCHELL



"Women and Children First!"

To most of us the phrase has a fictional quality; it savors of the melodrama or the six-reeler. But to those who have heard it in the dead of night, on sea-swept decks, with death just over the rail . . . it is a never-to-be-forgotten cry.

When grandfather used the clipper ships for his transatlantic crossing, it was heard far more often than today, to be sure. But even with powerful engines, steel bulkheads, gyroscopic compasses, and the ever-present wireless—the chances are better than even that this very week the dread warning will ring down a raging wind on one of the seven seas.

After that, it's up to the lifeboats. Now, to the layman a lifeboat is just a lifeboat, capable of holding so many people in an emergency. But to the seaman, there are two kinds of lifeboats—wood and steel. And generally speaking he prefers the latter, for a good and sufficient reason. Steel does not shrink when dry; wood does. Lifeboats which are hung in davits for weeks on end, exposed to wind and sun, develop open seams and leak badly; not necessarily enough to endanger the lives of the occupants who have taken to them as a last refuge from the storm, for air compartments are provided to keep the boat afloat even if there is a hole in the bottom; but enough to increase greatly the danger which is almost as great as that of drowning.

How many headlines tell of heroic rescues at sea, followed by reports that many of the survivors have perished through "overexposure"? Often—too often—this "overexposure" means sitting in a lifeboat which has a foot or so of icy water in the bottom. Wood boats can hardly avoid this condition when suddenly placed in use, as witness the regular boat drills which send them overside, only to take several inches of water in the short period of time required for the test.

But steel boats do not leak. They are easier to handle, stronger and safer. More than 95 per cent of the lifeboats in use on American-owned ships are made of steel. Only a comparatively small proportion of those in use on English, French and German boats are steel, for tradition is hard to down and the sea captains of those countries still cling to the wooden boat.

Average Life Ten Years

There are approximately 15,000 steel lifeboats in use in this country today, and that the trend is toward a further use of the steel boat by European shipping interests can hardly be doubted. For one thing, they last longer. The average life of a steel lifeboat is over ten years, while that of the wood boat is considerably less, according to estimates made by one well-known marine authority.

The largest fabricator of steel lifeboats in the United States is the Welin Davit & Boat Corporation of Long Island City, N. Y. They produce some twenty standard sizes of lifeboats and turn out a total of approximately 500 every year.

Sizes range all the way from 30 ft. x 10 ft. beam x 4 ft. draft to 12 ft. x 4 ft. x 2 ft. The keels are made from ordinary steel bars, the ribs of 2 x 2 x ¼-in. angles, and the hull is made of stock steel sheets, zinc-coated, usually No. 14 gage, but sometimes as thick as No. 12 gage. All the work is done on a manufacturing basis, with jigs and fixtures for all parts. Cold riveting is

used to fasten the sheets to the framework, as welding has not been found to work satisfactorily thus far.

This company also manufactures several lines of standardized steel rowboats and small launches ranging from 30 ft. long down to 10 or 12 ft. Large steel tugs, work-boats and yachts are also built, but the fabricating process has been confined to lifeboats and rowboats.

Another large manufacturer of small steel boats is the Mullins Body Corporation, Salem, Ohio. Known to automotive manufacturers as a builder of car bodies, this company has fabricated a line of small steel boats for many years and the recent development of the small outboard motor has done much to expand the demand for this type of boat.

Steel Ribs Instead of Oak

These small rowboats, or outboard motorboats, are made from pressed steel, zinc-coated, in sizes ranging from about 30 ft. down. Perhaps the most popular size is the 18-ft. launch, for which there has been a great demand since the highways have become crowded with a parade of automobiles and many people have turned to the inland waters to escape from dust and exhaust gases. The possible extent of the small boat business may be seen from the fact that there are about 200,000 registered motorboats over 26 ft. in length, approximately another 400,000 below that length, and literally millions of rowboats in use today on the lakes, rivers and harbors of this country.

The regular type of steel boat is practically puncture proof—i.e., any blow which would puncture a steel rowboat would smash a wooden boat beyond repair. Moreover, they are provided with air-chambers at bow and stern, so that they are virtually non-sinkable.

It has been contended that the bumps to which every boat is subjected would soon dent and mar the appearance of steel boats, whereas they would have no effect on the wooden boat. Light steel sheets will, of course, show the effects of an impact, but with the aid of a hammer, or in rare cases of a mechanic, the boat is as good as new.

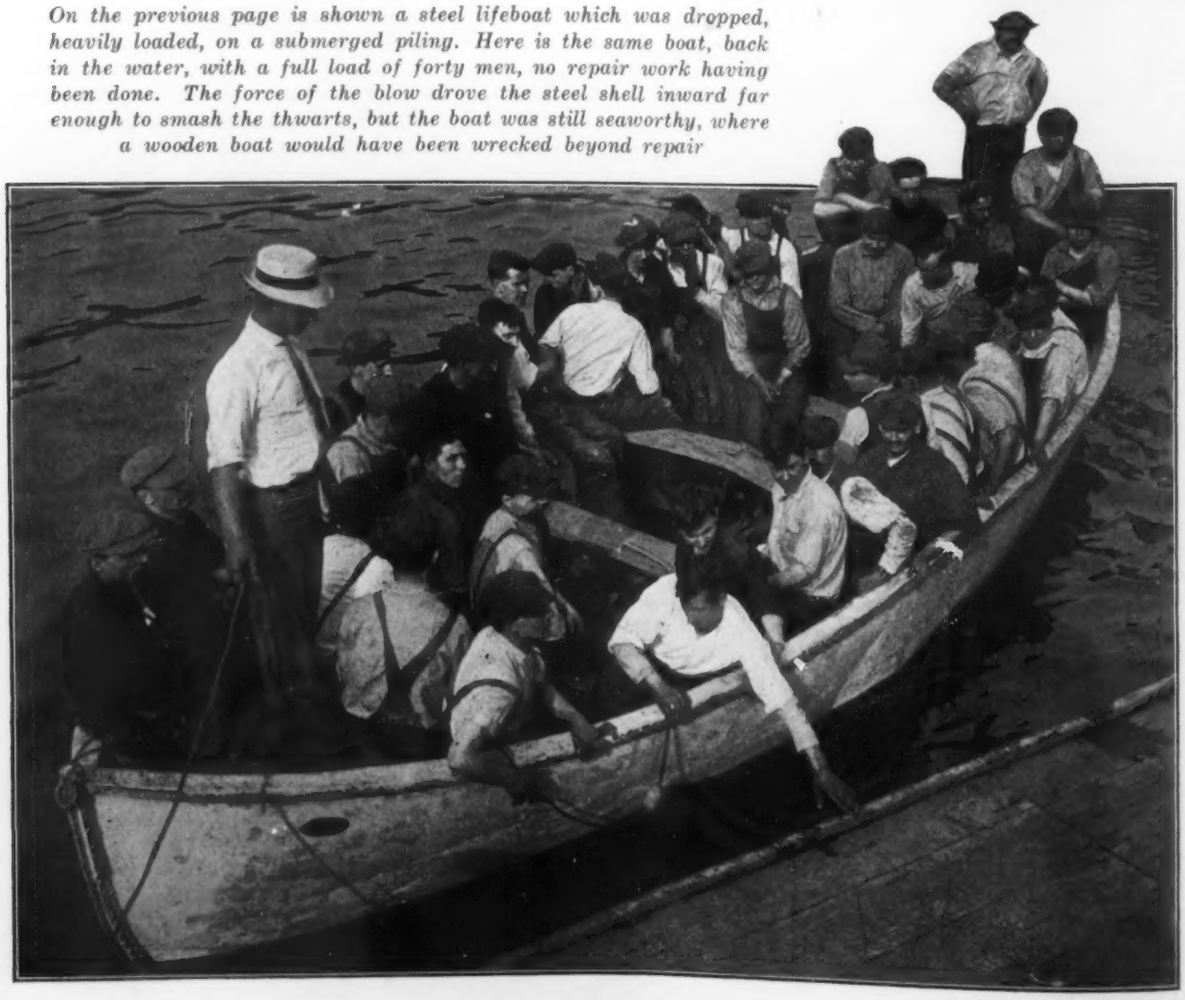
Used on Polar Expedition

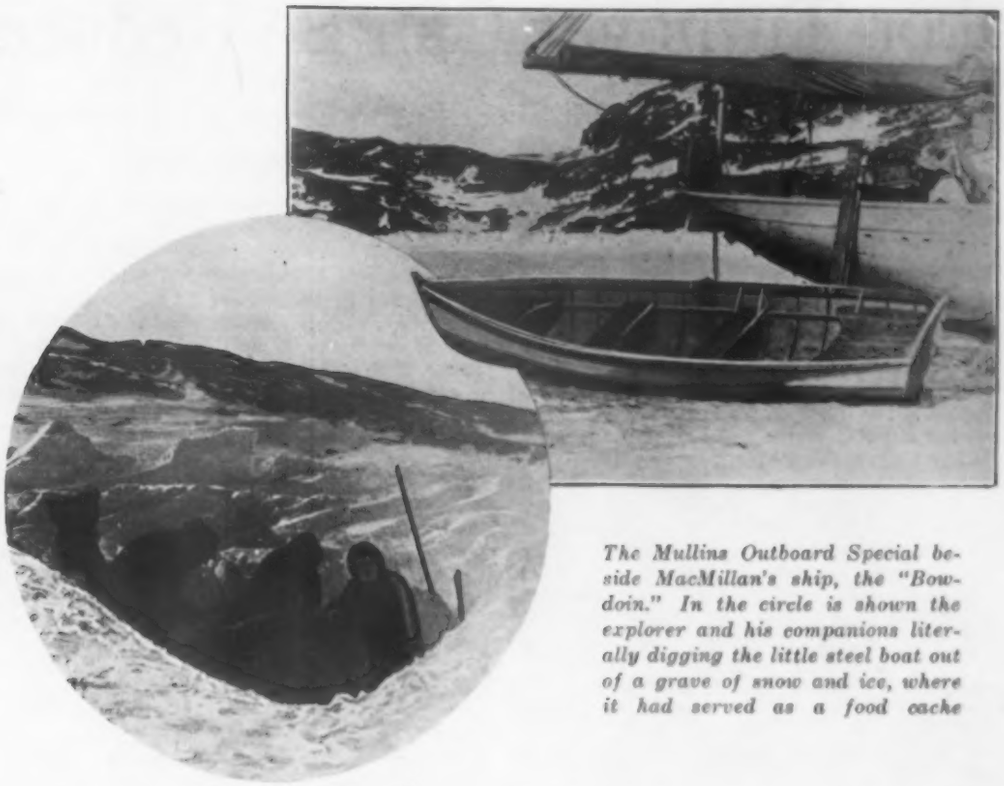
Steel boats have been successfully used in every corner of the world and have become recognized as safe, easy to handle on account of light weight, and long-wearing. Lieutenant-Commander Donald B. MacMillan, U. S. N., successor to Greely and Peary in Arctic explorations, took a Mullins "Outboard Special" pressed steel boat on his last expedition. No small boat was ever subjected to rougher usage in hazardous travel, but this one stood the battering of jammed ice that would have crushed the ordinary wooden boat like an eggshell. The boat has been left in the Arctic at a point which will mark the start of the new MacMillan expedition, which will start this summer, there to become once more a part of the tried and tested equipment of one of America's foremost explorers.

Not only are steel boats suited to pleasure craft requirements on account of their remarkable strength and light weight, but they have certain safety factors which are not to be overlooked. When used with power, there is always danger of fire from gasoline in a wooden boat. There is none of this danger with a steel boat. Again, a wooden boat will, if badly smashed, sink "without a trace," whereas the steel boats invariably are equipped with special air chambers which will keep them afloat even if there is a large hole in the hull.

They have met with especial favor in southern and

On the previous page is shown a steel lifeboat which was dropped, heavily loaded, on a submerged piling. Here is the same boat, back in the water, with a full load of forty men, no repair work having been done. The force of the blow drove the steel shell inward far enough to smash the thwarts, but the boat was still seaworthy, where a wooden boat would have been wrecked beyond repair





The Mullins Outboard Special beside MacMillan's ship, the "Bowdoin." In the circle is shown the explorer and his companions literally digging the little steel boat out of a grave of snow and ice, where it had served as a food cache

tropical waters, where the ravages of the teredo, or water-borer, ruin a wooden hull in short order. Wooden boats must either be copper-sheathed below the waterline, or else covered with special copper paint every few weeks. All a steel boat requires in the way of upkeep is painting once or twice a year. There is corrosion to contend with, of course, but experience has shown that corrosion does less damage over a period of years than normal decay which takes place in a wooden hull.

SOUTHERN PROGRESS

Increased Production and Consumption of Iron in Alabama in Recent Years

"Increased Consumption of Southern Iron in the South" was the subject assigned to Russell Hunt, secretary-treasurer of the Sloss-Sheffield Steel & Iron Co., Birmingham, Ala., and also Southern sales manager of the company, at the recent annual convention of the Southern Metal Trades Association in San Antonio, Tex. Mr. Hunt said in his address:

"It has been only a few years since we people of the South had a deep-seated feeling that all manufactured articles, if of good quality, must necessarily come from the factories of the North and East. Who could censure us for this attitude? Had we not all grown up with the fixed idea that ours was strictly an agricultural country, suited only for the never-changing crops of cotton and corn? But, gentlemen, a new order of things is upon us—the South is now fast assuming its rightful position as a combined agricultural and industrial section of the United States. And, why not—for what other section is so bountifully blessed with such wonderful climate, fertile lands, the best and most loyal labor supply in the world, and with untold and unmeasured store of all classes and kinds of raw materials?

"At the beginning of 1925, there were about 650 gray iron foundries in the Southern States, whose principal products are cast iron water and gas pipe, special flange fittings, soil pipe and fittings, screwed fittings, bath tubs, sinks, lavatories, stoves, ranges, hot air furnaces, radiation, car wheels, sugar mill machinery, cotton presses, cotton mill castings, farm implements, gasoline pumps, culvert pipe, white way posts, farm hardware and general castings. Eighty per cent of the water and gas pipe used in the entire country is now made in the South; our stoves and ranges find markets in Chicago and other large Northern cities; one of your members is furnishing white way posts to grace the boulevards of our National Capital, and thus the story goes.

"You will pardon me for giving you a few statistics from the sovereign State of Alabama. At present Alabama has in blast 25 furnaces, while only one merchant stack is going in Tennessee and two in Virginia. In 1885 Alabama produced 227,000 tons of pig iron; in 1890, 915,000; in 1905, 1,560,000; in 1920, 2,400,000; in 1924, 2,774,000. About 60 per cent of this tonnage is merchant or foundry iron, and, as already stated, about 80 per cent of this is being melted in the South, and when you consider in this connection the great increase in our production during the last 25 years, the percentage of Southern melt is all the more impressive."

Mining and Industrial Electric Locomotives

Shipments of mining and industrial electric locomotives in the first quarter of 1924 are reported by the Department of Commerce at 152, valued at $705,689. This compares with 167 in the last quarter of 1924, valued at $901,342, and with 185 in the first quarter of 1924, valued at $974,596. The recent quarter's shipments have the lowest value for any quarter in more than a year and, with the exception of the third quarter of 1924, the smallest number. Of the total, 145 were for mining and 7 for industrial use. The trolley type predominated under both heads, with 100 in the mining group and 4 industrial, leaving 45 storage battery type for mining and 3 in the industrial group.

Labor Turnover Can Be Reduced

But Paternalism Is Not Short Cut to Employee Goodwill— Problems of Human Relations Discussed at Meeting of Society of Industrial Engineers

WHEN the famous five-dollars-a-day minimum wage was announced by Henry Ford, dozens of different opinions were expressed as to the probable reasons for and results of such a policy. Some thought it a bold stroke to secure free publicity. Some said pure philanthropy and intimated that it had no place in business, for other employers who might not be so favorably situated might be unable to pay such wages. Nearly everyone conceded that there would be little difficulty at the Ford plants in getting enough good labor from thenceforth. Whatever the reasons may have been which prompted this move, one of the results was so startling that it proved that the policy was not an expensive one, at any rate.

Labor turnover was reduced from approximately 500 per cent to less than 14 per cent a year. Perhaps the motives were philanthropic, but the saving in hiring and firing more than paid for the increase in wages, according to a paper read to the Twelfth Annual Meeting of the Society of Industrial Engineers in Cleveland, May 6-8, by Dr. Charles A. Lippincott, manager of the cooperative department, Studebaker Corporation.

"Many efforts have been made to bring about closer relations between management and men," said Dr. Lippincott. "The problem of human relations can be solved only on an ethical basis. It cannot be solved by any welfare plans that were formerly popular and are still used in some plants. I do not believe in welfare plans. They involve paternalism and men resent it. They say 'give me what is due me and I will look after myself.' Men do not want gratuities. At one time managers thought that the more servile their men were the better was their labor situation. We are getting away from that now. I am opposed to anything that savors of paternalism or gratuity.

"If you cut labor turnover, you will go a long way in solving the problem of human relations in industry. Men must be sold on the fact that industry must be conserved and human relations must be developed along that line. Any man engaged on this problem must undertake it with the desire to render justice. The solution of the problem of human relations is a question of dollars and cents in industry. This is all to be brought about by a campaign of education, which is a slow method. The big problem today is the education of the men to get them to understand the policy of the Board of Directors. It is dollars and cents for the company to have foremen who are leaders rather than drivers of men. It makes no difference how modern the equipment and methods of a plant may be. The whole matter comes back to the men. Industry has spent millions in other directions but has not spent much in solving the method of handling men intelligently and until it does, it will not get far in solving the problem of human relations."

Mr. Lippincott said that his company in 1924 spent nearly $2,000,000 on its various lines of cooperative work for the men, the principal reason for which was to cut down labor turnover and to increase loyalty, and he believed the results warranted expectations. Labor unions approve the work, he said, but they believed the company would take the money it spent for this purpose out of the wages. However, the company agreed to pay as much in wages as the going rate for the same work where its plants were located and kept this agreement.

Why Managements Fail

DURING the opening session two papers relating to management were presented. Harry F. Hopf, H. F. Hopf Co. of New York, took for his subject "Management—A Problem of Executive Supervision." He declared that the scope of management is almost unlimited, as many problems are involved and that the task of management has assumed increasing importance. The only limit to the extent of management, he asserted, is the limit in the abilities of executives. In his opinion the human factor overshadows all others in executive supervision.

"The average business is sadly lacking in the desired management and most failures can be attributed to faulty management," declared the speaker, who pointed out some of the defects of business executives. He said that too many are concerned with maintaining the balance of power between heads of departments, some are too much disposed to refer matters to committees, which leads to discussions and delays before the policies are agreed upon and often results in a compromise, some devote too much attention to routine and some are not inclined to adopt new methods. Another factor in unsuccessful management is nepotism which often appears in plants where the owner, who is the manager, brings in his sons or other relatives. Some executives lack initiative and some do not accomplish the proper welding of the units of the organization.

The foundation stone in the relation between an executive and his employees, according to Mr. Hopf, is confidence by the employee in the manager which results in loyalty and efforts of the men to do their best. The speaker listed six tools of management. One is education and training for executive supervision coupled with the qualifications of leadership, and the others are reports, budgets, research, conference, staff assistance and standards, the latter being the most important tool. To simplify the management the question "Is this report necessary?" should be asked regarding every report. Budgets should be so prepared as to aid the management. He stressed the importance of research work but declared that some executives are unable to utilize the results of this work.

Less Red Tape Needed

SOME phases of management were discussed in a paper entitled "Production Management by Organization Rather Than System" by W. B. Ferguson, production manager, Newport News Shipbuilding & Dry Docks Co., Newport News, Va. The speaker declared that some plants have too much system, a great deal of which can be dispensed with, although there is also the danger of having too little system. System is the mental part and organization is the spirit of management. It takes more than logic to inspire men to do good work, he declared. He referred at some length to information relating to simplified management brought out in a paper by Ralph E. Flanders, manager of the Jones & Lamson Machine Co., presented at the meeting of the American Society of Mechanical Engineers last December. Turning to the subject of records, he said that certain records have to be obtained but that the keeping of these records does not have to be kept up indefinitely and he cited cases of companies that had reduced their number of forms very materially. One, by the elimination of unnecessary reports, was able to reduce its overhead 30 per cent in sixty days. He believed organization charts are necessary in new organizations but are not required in many old organizations where the men have long been associated together and know their respective duties. He favored the use of committees to bring out the proper coordination between departments. In the plant of his company the character of the work

led to the appointment of a committee on material control. Looking ahead to the completion of the job is the real problem in organization, according to the speaker.

Labor Pooling Feasible

THREE papers were presented at a meeting of the industrial relations group, Friday morning, that was presided over by E. S. Cowdrick, New York. "Unemployment Insurance and Continuity of Employment," was discussed by Bryce M. Stewart, manager of the Chicago Employment Department of the Amalgamated Clothing Workers of America. He traced the history of unemployment insurance and outlined the plan followed by the garment industry in Chicago which, he said, could be applied to other industries. He favored a pooling of labor reserves of one industry in a community, saying that the labor so pooled would be less than the aggregate of the labor reserves of all plants when the pooling plan is not followed. Labor could be shifted from one plant to another with the fluctuations in plant operations. Men laid off from work would be required to register for employment or they would not draw insurance. When necessary, men fitted for one kind of work could be put on other jobs and trained for that work. Labor turnover would be reduced because men on part time and drawing insurance would be less inclined to quit their jobs. The mobility of labor between plants would be promoted. Unemployment insurance would give workmen an income in times of depression and that would be reflected in the benefit to industry at large and unemployment insurance, would cause employers to gather statistics to aid them in devising plans that might result in more continuous operations. In conclusion he said that unemployment insurance by states can not accomplish much but insurance plans placed in effect by industries give promise of larger continuity of employment.

Old Age Pensions

"COST and Administration of Industrial Pensions" was the subject of an interesting paper by J. E. Morford, industrial relations department, National Industrial Conference Board, New York. The speaker stated that many employers are afraid to adopt pension systems because they do not know what obligations the system will lead to. Many provide pensions without figuring the cost. It is better not to adopt a pension system if it can not be kept up. He outlined the motives behind the pension systems including the provision for the care of superannuated employees, the securing and keeping of good workmen, the reduction of the labor turnover, the elimination of the unfit in a humane way, the increase in efficiency in a plant and the decrease in labor troubles. Many employers are largely influenced by the humanitarian motives, he said, or by their desire to reward long and faithful service. He divided pension system into two classes; contributory, in which the employees share in cost, and non-contributory, the latter being more generally favored by industrial companies. He regarded the non-contributory plan as deferred wage payments and not to be considered as charity. The usual pension age is 65 years for men and 55 years for women for a continuous service of from 20 to 30 years.

Mr. Morford said that industrial pensions have not been in effect long enough to deduct definite conclusions as to cost. Most pension plans have been adopted since 1910 and the whole movement is at present in an experimental stage. There are 242 industrial companies in the United States, with 2,511,000 employees, having pension systems.

A new subject to be discussed by the society was "Vacations for Wage Earners." This was presented in a paper by C. H. Gullion, industrial engineer Swift & Co., Chicago. He outlined the vacation plan in effect at the Swift plant and declared the subject of much importance as many companies have recently adopted plans for giving employees vacations with pay. At the Swift plant vacations of one week with pay are given to piece workers and weekly employees, to men who have been employed four years and to women who have worked for the company three years. Over 5000 men and 300 women get vacations. The plan, he said, has had a good effect on labor and vacations with pay show good returns on the investment.

Research on Management

DR C. S. YOAKUM, University of Michigan, presented a very scholarly paper on future research in labor management before a dinner meeting of the research committee. He felt that there is an opportunity to do a great deal of work in this direction and suggested three problems for research. These are covered by the general titles of nature of unemployment, analysis of management and the distinction between persons and commodities as factors in production. Taking up each topic separately, he pointed out in what directions a survey should bring out information that would be of great value in the management of labor. Under the general heading would come such topics as seasonal employment, labor reserves, better classifications of labor, concerted action on some of the management problems and wage incentives. In discussing management he declared "The curve line that makes captains of industry overnight is dropping rapidly to the base line" and he explained the opinion that shop committees sometimes more clearly perform their functions than executives.

The Thursday morning session was a memorial meeting held by the committee for the elimination of unnecessary fatigue in honor of the late Frank D. Gilbreth, founder of the movement to study fatigue and organizer and first chairman of the fatigue committee. This was presided over by George D. Shepard, Purdue University, chairman of the fatigue committee, and tributes to Mr. Gilbreth were paid by President Sheehan, John Younger, *American Machinist*, and A. B. Segur, Chicago. The speakers expressed their keen appreciation of Mr. Gilbreth's work and of what he had accomplished for industry, paid tribute to his remarkable personality and referred to the affection they held for him because of his endearing traits of character. "As years go by, his work will be more appreciated and it will be a lasting standard of measurement," said President Sheehan. Mr. Segur contrasted industry as Mr. Gilbreth found it and as he left it. "He laid great foundations and it is for you to complete the structure," he declared.

The memorial meeting closed with the reading of resolutions honoring Mr. Gilbreth that were adopted recently by the Board of Directors. "It is resolved," said the resolution, "that the society mourns his death as the loss of one to whom we looked for leadership and one who had endeared himself to us individually by many kind and friendly deeds; that the workers have lost in him a true and wise friend; that the engineering profession, science, civilization and humanity have lost in him a courageous and enterprising engineer."

Is Personnel Work on the Wane?

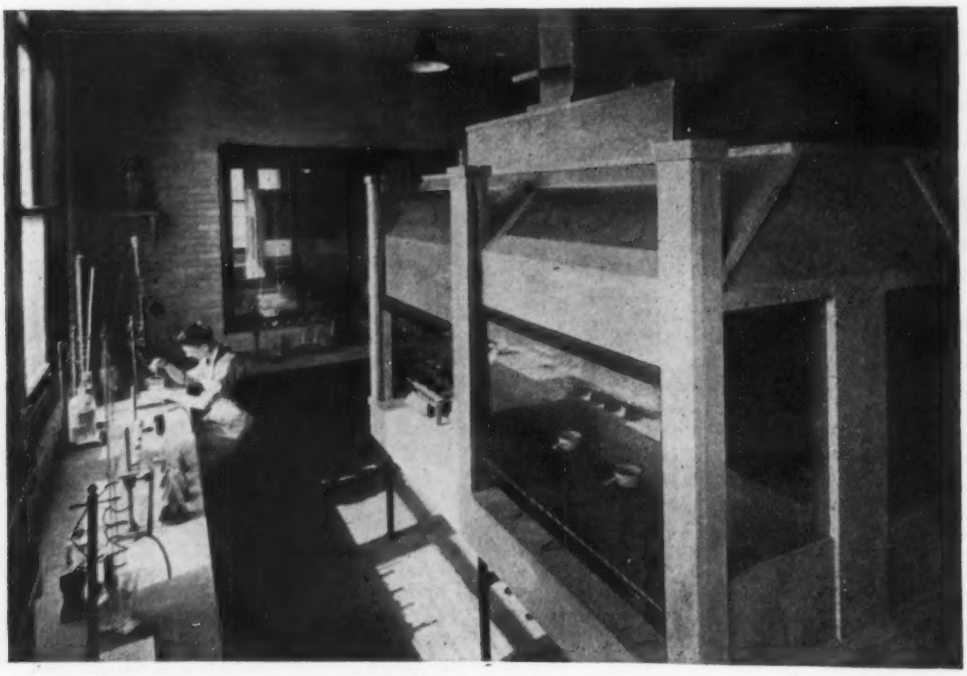
During a discussion of Dr. Yoakum's paper, read before the Cleveland meeting, mention was made of a recent survey which purported to show that many companies have recently discontinued personnel work. In reply, D. W. K. Peacock, director of personnel, White Co., Cleveland, declared that those companies which went into personnel work in 1918, and avoided "cure-alls" and frothy stuff that passed as welfare work, are now doing more than ever in that direction. In other words, those companies which have used practical personnel methods to reduce turnover and secure a more adequate labor supply have discovered that it ***does*** *pay.*

Laboratory for Colonial Steel Co.

Chemical, Metallographic, Research and Heat-Treating Departments Housed Under One Roof

BY GEORGE F. TEGAN

A NEW laboratory, recently completed and occupied by the Colonial Steel Co., Pittsburgh, at its plant at Colona, Pa., is attracting considerable attention, not only because it embodies so many of the modern ideas as to what such an installation should be, but from the wider aspect of the importance of the laboratory in the manufacture not only of special but of the commercial grades of steel. A large percentage of the commercial steel now made is sold on chemical and physical specifications. Almost all of the steel now used by the automotive industry is subject to analysis and examination of structure. This is partly true of structural, railroad and other steels. It is small wonder, therefore, that steel company executives see the need of efficient laboratories and this means that, in the future, chemists and metallurgists will have quarters in buildings that provide conditions favorable to the very exact character of the work. The day is gone when the laboratory can be quartered in some old building or some out of the way space made vacant by changes in the plant, if the work is to be properly and accurately done.



Alloy Room on Main Floor. This and other main floor laboratory rooms, except the carbon combustion room, contain hoods of Alberene stone similar to the one shown in this view, except as to dimensions

The departments of the new laboratory are four in number: Chemical, research, metallography and heat treating. In the chemical laboratory a close check is kept on products by making a thorough analysis of all raw materials. Since the company makes nothing but special steels, many of which have a complex chemical composition due to the number of ferroalloys used, the question of analysis and composition is important. In making one of the most highly alloyed as well as expensive steels, the ferroalloys used in some cases, due to scarcity and quality of ores, may carry small percentages of certain metals which, if introduced into the steel, might prove detrimental. The chemical laboratory equipment includes electric hot plates, electric drying ovens as well as electric furnace equipment for the determination of carbon by combustion.

The research work will be carried out by utilizing all three departments which, other than the chemical laboratory, include the regulation metallographic equipment in addition to a critical point determination installation. The heat-treating department is well equipped for any class of work.

Metallographic work is rapidly gaining in favor in the metal industry. No first class laboratory in that industry today is considered complete without equipment for such work. The equipment in this laboratory, other than the critical point machine, consists of a Bausch & Lomb photomicrographic outfit, capable of photographing to a magnification of 2300. The necessary dark room for plate development and printing is provided.

The heat-treating department is primarily intended for hardening of high-speed steel tool holder bits to permit this work to be performed in a central plant. For research and commercial work there are a Leeds & Northrup electric "Hump" furnace and a Leeds & Northrup electric drawing furnace with automatic control.

It is the belief of the executives of the Colonial Steel Co. that the laboratory is the heart of a plant making high-grade steel and there is exemplification of that thought in the new laboratory. There is a solidity to the construction of the building that would seem to obviate frequent adjustment of delicate weighing and testing equipment, made necessary by vibration. To get away from the vibration of the rolling mills and hammers in the plant, there was extensive drilling of the ground to insure a foundation for the new building on different rock strata from that of the plant proper.

From a lighting standpoint the location is ideal. It

Heat Treating Room. To the right is a Leeds & Northrup electric unit for heating for hardening. Another for drawing is not shown. At the left are three gas-fired hardening furnaces

occupies high ground near the Ohio River where good natural light is best afforded and where no interference is likely to occur from other extensive improvements now under way on the property. Dr. N. B. Hoffman, metallurgist of the company, designed and supervised the construction of the building, while the engineering work was done by the Samuel E. Duff engineering organization, Pittsburgh.

The building is 41 ft. 2 in. wide from north to south by 71 ft. 2 in. long in plan and 23 ft. high to eaves. It is constructed of fireproof and acid-resisting materials throughout, the effort being made so to finish the interior that all possible resistance to fumes would be provided. Even the hardware is of acid-resisting metal. There are two working floors, a basement containing the physical laboratory and heating plant and a main floor containing the office of the metallurgist and a complete chemical laboratory.

The basement floor is of smooth finished concrete 4 ft. 6 in. below yard ground level. Inclined ramps at each end of the building provide means for conveniently conveying heavy materials and samples to the physical laboratory by wheelbarrows. The basement is divided by fireproof terra cotta tile partitions into the following rooms: Metallographic room in which is included a dark room; hardening and testing room; sampling room; acid etching room; acid storage room; men's toilet and locker room; boiler room and coal storage.

The clear ceiling height is 11 ft. 6 in. The walls are finished in hard plaster and painted with two coats of acid-resisting paint. The floor of the metallographic room is finished with a surface of elastic magnesite. Light is provided by numerous windows with heavy plank frames and double hung wood sash glazed with crystal glass. A commodious steel stairway with cement filled treads connects the basement with the main floor.

The main floor has a surface of 6 in. x 6 in. semi-

Routine Laboratory. At one corner of each sink is a trough located below a water spigot. Beakers are placed in the troughs instead of the sinks for cooling, this arrangement freeing the sink for other uses

vitreous red tile laid with 1/16 in. Portland cement filled joints and coved tile base, except the metallurgist's office which has a surface of elastic magnesite. The main floor is constructed of the standard type of reinforced concrete joist and terra cotta tile filler construction, supported on the main walls and steel beams. The entrance is by means of monolithic smooth finish concrete steps, located at the center of the north side of the building, to a vestibule 3 ft. below the main floor level, floored with red tile, from which reinforced concrete stairs, finished with red tile risers and treads, lead to the main floor corridor.

The main floor is divided by fireproof brick and tile partitions into the following rooms: Routine room; alloy room; raw material room; water analysis and miscellaneous room; carbon combustion room; balance room between routine room and alloy room; balance room between raw material room and water analysis room; metallurgist's office and women's retiring room. Corridors 5 ft. wide connect the main entrance and basement stairway with the various rooms. A steel stairway with checkered plate treads leads to fan room under the roof. A hand operated lift is provided between basement and main floor for handling of samples, etc.

The walls of the routine room, alloy room, raw material room, water analysis room and carbon combustion room are lined with granite Tiffany enameled brick, laid in white Portland cement mortar with slightly concave tooled joints. To keep out dirt all door and window openings are trimmed with bull nose shaped brick. The ceiling over the main floor rooms is applied on metal lath, suspended from the steel roof purlins, and has a clear height of 12 ft. The walls of all other rooms on the main floor and all ceilings are hard finished gypsum plaster painted with three coats of acid-resisting paint. Light for the main floor is through windows glazed with crystal sheet glass.

All laboratory rooms except the carbon combustion room are fitted with Alberene stone benches and hoods, and the balance and carbon combustion rooms with Alberene stone benches. The laboratory benches are constructed of Alberene stone slabs 2 ft. 2 in. wide, supported by steel pipe frames and are fitted with Alberene stone sinks, cooling troughs, shelves and peg board, as well as a continuous line of wood drawers under the slabs.

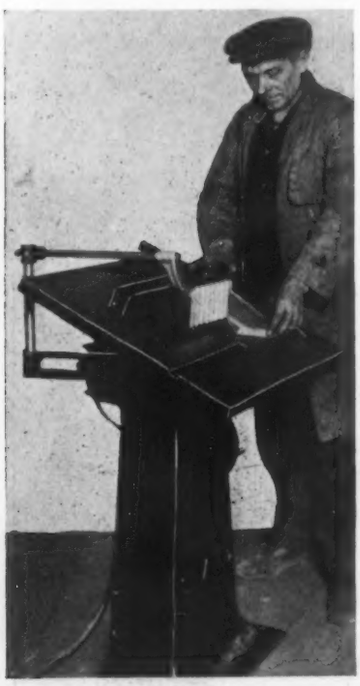
The hood in the center of the routine room is 5 ft. x 13 ft. and contains four compartments, all constructed of Alberene stone slabs and fitted with counterweighted wood sash, glazed with clear wire glass. The hood in the center of the alloy room is 5 ft. x 10 ft. and those in the raw material and water analysis rooms each 4 ft. 6 in. x 8 ft., with four compartments of identical construction as the routine room hood.

In the center of the building a concrete floor, 5 ft. x 30 ft., is constructed above the main floor ceiling, inclosed by rough tile walls running to the roof, providing space for exhaust fan, water still and distilled water storage.

The building is heated by a hot water system from a boiler in the basement. The electric driven exhaust fan, with ducts from all laboratory hoods and from hardening room, is arranged to discharge into a brick stack at east end of building. From the fume collection box on top of each hood an Alberene stone duct runs vertically through the ceiling to a system of horizontal sheet metal ducts carrying the fumes to the fan. The capacity of the exhaust fan is sufficient to change the air in all the laboratory rooms about every two minutes. A fresh air supply comes through an adjustable screened opening in the basement and is carried through an indirect heating stack for regulation of the temperature, after which it is discharged into the basement hallway, from which it circulates through the building.

Gear-Driven Universal Saw

A gear-driven universal saw recently added to the line of R. L. Barker & Co., 642 West Washington Boulevard, Chicago, and intended for cutting wood, metal, Bakelite and other compositions, is illustrated herewith.



The Gears in the Drive Are of Helical Type and Run in Oil. The shafts are mounted in ball bearings

The gears in the drive are of helical type with wide face, and the shafts in the drive are ball-bearing mounted. The gears run in oil. A ½-hp. General Electric motor is employed and the drive unit is adjusted up and down by means of a handwheel. The saw arbor runs in ball bearings. The table, the size of which is 23 in. by 28 in. by 34 in. high, will accommodate stock up to 12 in. wide. The saw is 8 in. in diameter and will cut to a depth of 2⅜ in. A 1-in. removable dado plate is provided. The shipping weight of the machine is 300 lb.

Iron and Steel Industries of Oakland, California

SAN FRANCISCO, April 25.—Thirty-seven factories have been listed under the classification of steel products in the industrial survey recently completed by the Oakland Chamber of Commerce. These factories have a combined annual output of products valued at $31,700,0000, annual payrolls of $7,500,000 and a total of 4150 employees.

Ten of the concerns have an annual production capacity in excess of $1,000,000, seven are in a class above $500,000 and eight produce commodities valued at more than $200,000.

Following are the names of the concerns listed under the classification of steel and steel products by the Oakland Chamber of Commerce:

Pacific Diesel Engine Co., Pacific Engineering Co., Pacific Coast Engineering Co., Pacific Malleable Castings Co., Spears-Wells Machinery Co., Steel Tank & Pipe Co., Solano Iron Works, Threaded Products Co., Union Gas Engine Co., Union Press & Forge Co., United Iron Works, Union Machine Works, United States Foundry Co., Western Aluminum Mfg. Co., Western Steel Package Co., Western Forge & Tool Works, Western Heavy Hardware Co., Yager Sheet Metal Co., Madewell Pipe Co., American Manganese Steel Co., Atlas Imperial Engine Co., Borrman Steel Co., Best Steel Casting Co., Bethlehem Shipbuilding Corporation, C. L. Best Tractor Co., Berkeley Steel Foundry Co., California Corrugated Culvert Co., California Steel Co., Dow Pump & Diesel Engine Co., Detroit Steel Products Co., East Bay Iron Works, Hubbard & Co., Hanlon Drydock & Shipbuilding Co., Janson Iron Works, Judson Mfg. Co., Herrick Iron Works, Moore Drydock Co.

Trade Commission Policy Change

Federal Body Clearing Docket of Cases Involving No Public Interest—Publicity Features Challenged

WASHINGTON, May 11.—Proceeding under its markedly changed policy, the Federal Trade Commission has figuratively been transformed overnight from an organization that was reputed to have a radical cast to a conservative body. Most assuredly the sharp changes in its practices have come as a distinct relief to business interests of the country. There can be no doubt that the more conservative tone of the commission accords with the policy of President Coolidge to encourage rather than discourage business and not needlessly to disturb it.

As to the attitude of the commission toward business, including that of issuing complaints and of making public statements concerning complaints, it recently has been noted, though not generally, that the commission in connection with one of the outstanding features concerning its new policy of procedure has been and is dismissing many old cases on the ground that no public interest is involved. The commission also is dismissing cases and declining to take up new ones where it considers it has no jurisdiction; the element of interstate commerce comes prominently into this latter case.

Instead of taking all of these old cases which, under the new policy, became dead timber, and wiping the slate clean of them en bloc, the commission is dismissing them one at a time or in groups. But at the rate these cases are being dismissed it is expected that it will not be long until the docket not only has been greatly reduced as to number of cases, but will contain only those proceedings which are held to involve not alone an issue between a complainant and a respondent, but the public as well.

Public Interest a Criterion

Unless a case does concern public interest, it will not be taken up. The theory is that the commission itself, being a government organization, has been set up to serve the public and should have no dealing with personal quarrels within given trades. Moreover, the commission has taken the attitude that it is just as much its duty to assist business as to press complaints, when they are issued under the charge of unfair methods of competition, or any other issue over which the commission has jurisdiction.

Dismissing of many old cases was begun shortly after announcement of the new policy of procedure and was taken after the chief counsel of the commission had gone over the docket and passed upon the individual cases, as to public interest being involved. Among the numerous complaints that have been dismissed were those directed against the Banner Foundry & Furnace Co., and the Banner-Mahoning Furnace Co., Akron, Ohio, and the Boston Automobile Dealers' Association. In the former cases the respondents, manufacturers of stoves, etc., were charged with attempting unfairly to obtain a competitor's business; dismissal was based on lack of public interest. In the proceeding against the Boston Automobile Dealers' Association the charge was that of combining to fix uniform allowances and valuations for automobiles; it was held that there was no interstate commerce shown.

Withholding Publicity

One recent change adopted by the majority vote of the commission concerns the matter of publicity. This not only was a source of dissent by Commissioners Thompson and Nugent but has created considerable adverse criticism. Under the new policy the commission announced that it no longer will issue statements for publication concerning any question settled by stipulation. Also it was stated that, after a complaint is issued, no announcement will be made for publication until after the final determination of the case. After a complaint has been issued and the answer filed, or in case no answer is filed, the papers will be opened for public investigation "under such rules and regulations as the secretary (of the commission) may prescribe."

The underlying purpose of the majority with respect to its publicity policy is accepted as being well taken, because it is sought not to injure the standing of any business interest by publicity until after the merits of the case have been determined. But the point has been made that it remains for the commission not to issue the complaint, if it has such solicitude for proposed respondents, unless it is confident that a meritorious case has been presented against them. Moreover, it is held that complaints involving any particularly important proceeding could not possibly be issued by the commission without the fact becoming known in the respective trades and the commission would be obviously without authority to prevent the press from publishing the facts, provided it were sure of their accuracy. Moreover, it has been contended that complaints might be issued and the fact become known without publicity and, in the absence of the latter setting forth the case clearly, there would be a great deal of speculation and gossip that would do more injury to the respondents than accurate publicity could possibly do.

Pacific Coast Steel Industry Moves for General Survey

SAN FRANCISCO, May 9.—Meeting for the purpose of consolidating the work of sub-committees and of confirming plans for a survey of the State steel industry, which has already been started under the direction of John D. Fenstermacher, secretary Columbia Steel Corporation, the executive committee of the Iron, Steel and Allied Industries of California held its third meeting yesterday in the offices of the San Francisco Chamber of Commerce.

As a result of the meeting publicity work will be undertaken in the near future to emphasize the importance of the State's steel industry to the industrial and economic development of California and the Pacific Coast. Plans also will be formulated by the traffic committees of both the northern and southern divisions for bringing about an equalization of freight rates so that California manufacturers will not be handicapped by alleged archaic rates in attempting to broaden their trade territories. Maynard McFie, president W. T. McFie Supply Co., Los Angeles, presided.

The committee is making a study of the importation of foreign iron and steel on the Pacific Coast, and will endeavor to impress all Pacific Coast steel users with the importance of supporting the local industry as the only way of insuring the industrial development of the Coast, and the maintenance of present industries.

The next meeting of the committee will be held June 26 at the offices of the Los Angeles Chamber of Commerce, Los Angeles.

Costs Multiplied by Old Machines

Good Management Can Be Nullified and Real Profits Strangled by Reluctance to Replace Obsolete Equipment

BY FRANK A. SCOTT*

"NOTWITHSTANDING all the advance—and it was tremendous—made in metal working during the World War, we have entered another new era since 1921. The struggle to meet fiercer competition; increased overhead; higher taxation, is now reflected in new productive methods. Whereas mass production formerly commanded our interest, now small-lot production must have its turn.

One of the responsibilities of management is keeping plant equipment up to date. This requires constant effort, for the advanced designs of today become obsolete tomorrow. The general executive of a large business cannot be expected to know the details of the productive equipment in his plant. Here are just a few illustrations of actual installations which have occurred recently, emphasizing the opportunity for net profits from modern equipment.

First is a case which shows clearly the difference in output of a modern machine tool without any change in the method of cutting. This shop replaced a planer perhaps ten years old with a new 48-in. Gray maximum service planer. There was no change at all in the method of cutting the bronze driving box shoes, nor was there any change in the size of the planer. Whatever reduction occurred in the time was, therefore, due entirely to the heavy construction, abundant power, and heavy cuts of the new planer.

The time was cut from 30 to 20 min. A little figuring showed that the additional investment of $4,700 in this planer earned net profits each year of 43.6 per cent. Possibly this figure strikes you as high, and yet there are similar possibilities in the planer field in hundreds of shops all over this country.

Even in the railroads shops, the gospel of "net profits from modern equipment" is gaining ground. One shop with which we are acquainted, typical in every way, reduced the time in grinding crank pins from 45 to 20 min. To do this required the additional investment of $2,540, which earned net profits of 108.3 per cent. It is the responsibility of management to seek out and find opportunities such as this for the profitable investment of capital.

Many industries come to our attention where the metal cutting function is relatively unimportant, and those of us in the metal working industry find some curious attitudes of mind. For example, the chief engineer of a large copper concentration plant stated recently he could not obtain an appropriation for new machinery for maintenance work in a large mine, although literally millions of dollars of capital were available for any change in operating methods which would save a cent or two a ton in mining or crushing the ore. In other words, the policy of the company is to adopt new machinery which affects operating costs, even scrapping overnight large sums of capital invested, but to ignore entirely savings in the subsidiary, or secondary, part of operations, that is, maintenance work.

Those of us in the metal working industries know from a careful study of this situation that it would be possible to replace the existing equipment with half the number of machines, and at the same time show a very substantial net profit on the installation, besides speeding up repair and maintenance work, which is very important in such operations.

Another example is the milk bottle industry. Several years ago we discovered that the making of the molds for milk bottles was taking eight hours. This was done on an engine lathe by a craftsman of the old school.

A very simple application of modern methods of turning metals reduced the time to 50 min. One machine did all the different sizes and varieties of milk bottles by a simple change in the contour plates. Since that time the majority of the concerns in the bottle industry have adopted turret lathes for this work.

The additional investment required for installing this machine was $4,793. The net profit on the installation was 384.4 per cent each year, although the tools were depreciated 100 per cent each year, and the requirements for bottle molds in this shop kept the machine busy only two-thirds of the time.

One of the responsibilities of management is to keep up-to-date with the change in design of machine tools. In the last five years not only have many new types appeared, but the transmission of power, the accuracy of performance, and the length of life, have been substantially improved. A good illustration of a change of design in a well-known field is that of radial drills. One of the gentlemen of the American Tool Works told me recently that the time for boring locomotive side rods was cut from 540 to 58 min. This was due largely to the internal gear spindle drive developed by this company, which tends to eliminate chatter because three teeth are constantly in mesh.

Another field, when employing capital to advantage, is in the use of strictly standard tool equipment, which is now produced by the makers of many machine tools. I recall one case where the time for making a drive end housing for automobile starters was reduced from 27 to 10 min. by a small modern machine with a strictly standard tool equipment which cost only $240. Certainly a special equipment to do this work would have cost two or three times this amount, and then would not have been available for other work within its range. In fact, many machine tool makers do not recommend special tool equipment even for quantity production, unless the piece is difficult to hold, or unusual contours are required, or heavy multiple cuts can be obtained only by special fixtures.

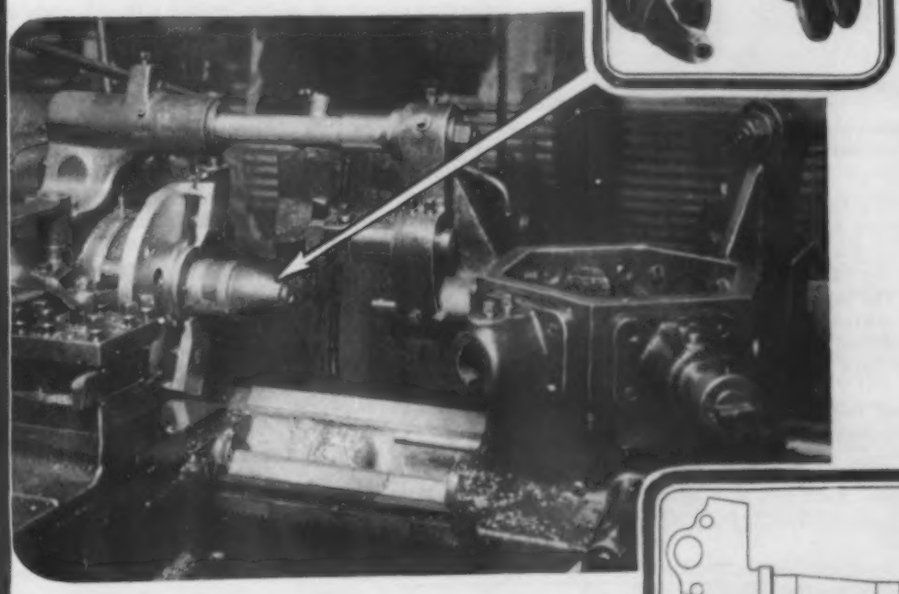
*President Warner & Swasey Co., Cleveland, Ohio.

The cornerstone for a clubhouse to cost $40,000 was recently dedicated at the Buda Co. plant, Harvey, Ill. The club is being built by the Buda Athletic Association, composed entirely of company employees, on a city block at 148th Street and Columbus Avenue, which was donated for the purpose by the late James Villes, former president of the company. The building will include a gymnasium and an auditorium.

When production costs are dangerously close to selling prices, when industry groans under the burden of taxes and competition fights hard for every order, the question of profits is one with the problem of low manufacturing costs. In this interesting paper presented before the Society of Industrial Engineers in Cleveland, Mr. Scott points out some sound reasons why the modern battlecry of business should be—"Lower the Cost per Unit!"

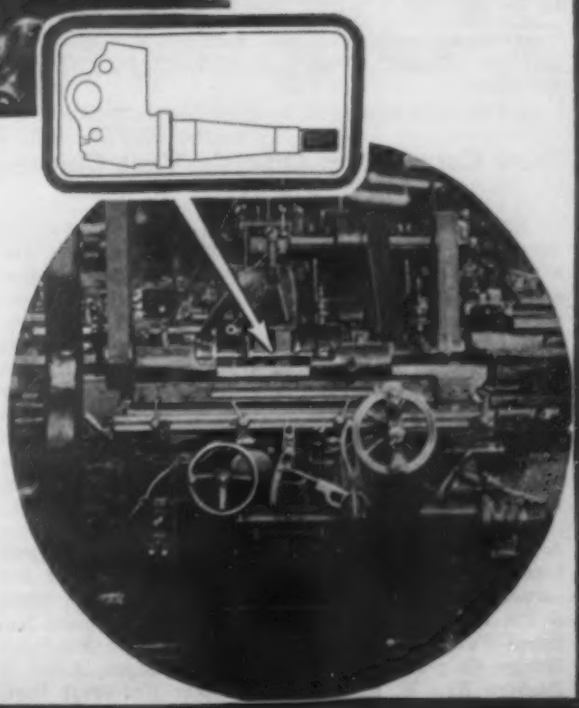
Net Profits from Modern Equipment

IT took 40 minutes to make one roughing and two finishing cuts on the inner cam surface of this pump body until a No. 2-A Kearney & Trecker Milwaukee Milling Machine was installed. Using a special 12 tooth right hand spiral mill for roughing and a special 24 tooth right hand spiral mill for the two finishing operations, the time was cut to 12 minutes. Even allowing 100 per cent depreciation on the cost of the special tools involved, the net profits on this equipment equal 309.2 per cent.



BEFORE the No. 2-A Universal Hollow Hexagon Turret Lathe shown in this picture and made by the Warner & Swasey Co., of Cleveland, was installed at the plant of the Leece-Neville Co., of that city, operations on the bendix housing shown required 27 minutes. Now this modern turret lathe, with overhead piloted turret tools and an efficient though inexpensive holding mechanism, does the work in 6.3 minutes . . . and the net profits per year are estimated at 224.3 per cent.

FORMERLY two cuts were required in this steering knuckle and two handlings. Time: 0.18 minute. The Norton grinding machine (made by the Norton Co., Worcester) shown here eliminated the handling, replaced three machines and three operators, reduced the time to 0.06 minute and earned 436.4 per cent on its investment. The two wheels are of different diameters, one finishing the steering knuckle on the outside end where the finished diameter is 0.874 inch; the other finishing the inside diameter which is 1.312 inches in diameter.

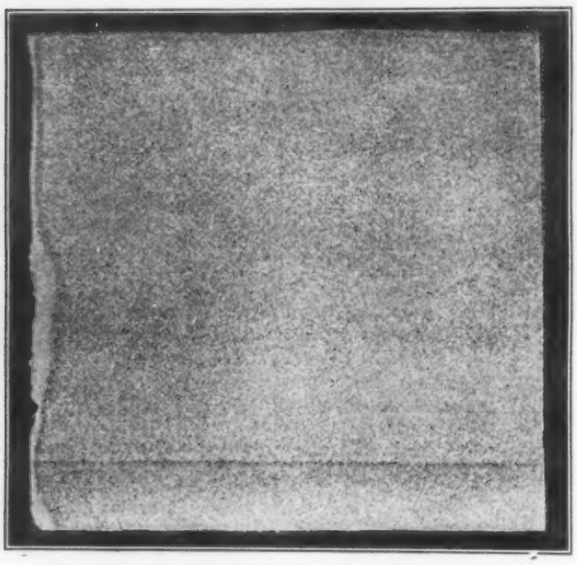


OXY-ACETYLENE CUTTING

Effects on Structural Steel Negligible—Surface a Bit Harder

BY E. E. THUM*

INVESTIGATION of steel surfaces severed by several different methods—cut by the oxy-acetylene flame, by shearing, by a hack saw and a friction saw—has been made by the Union Carbide & Carbon Research Laboratories, Long Island City, N. Y. Square bars were cut from ⅜-in. mild steel plate by several methods and each bar tested as a beam in bending. After the load to produce permanent set had been determined, bending was continued around a pin ⅜ in. in diameter, with results as shown in the table. The first bar was cut out by a hack saw. The second was cut with the flame. The third was cut oversize by the oxy-acetylene flame and the surface cut milled ⅛ in. The fourth was sheared. The first three bars bent 180 deg. without sign of fracture.



Surface Normal to Oxy-Acetylene Cut, Sawed, Polished and Etched

Slightly more load was required to give the bar with the flame-cut edge a permanent set. This is caused by the fact that a narrow zone at the surface has been slightly carbonized and hardened by the cutting flame. The third bar tested almost identically the same as the first, showing that the hardened and carbonized surface had been completely removed by the ⅛-in. cut. The bar, which was sheared and tested, bent easily and cracked seriously after slight deflection.

Similar experiments on bars cut from the web of an I-beam gave the same results on structural steel—the blowpipe cut surface being slightly stronger than the original metal, but withstanding the bending test perfectly. Experiments were then made on angle bars which had been cut by a friction saw—a device very common in bridge shops and steel warehouses. As shown by the table, bars cut and bent with a friction-cut surface showed low strength, and a multitude of fine cracks developed under small deflections, whereas a machined bar from the same angle iron gave much better properties. These tests show that a surface cut by a friction saw is damaged almost as much as one which has been sheared. This will be news to most engineers, as few specifications discriminate against a surface cut in this manner.

Many experiments show that the heat effect of an oxy-acetylene cut is seldom more than ⅛ in deep. Even in a 6-in. billet, the depth of the heat effect is quite uniform from the top to about ½ in. from the bottom, where it extends somewhat more deeply into the metal, owing to the fact that globules of metal and molten slag drip from the under side of the slab.

Another place where the heat effect may extend somewhat more than ⅛ in. into the metal is shown in the illustration. This represents an I-beam sawed on its vertical axis, then polished and etched. Effects of the oxy-acetylene cut are shown at the left. A certain region at the center is heated twice, once in cutting the flange to one side of the web and the second time when the flame is working diagonally opposite across the other side. Here the heat effect is somewhat deeper, but is nowhere more than ⅛ in.

These experiments show also that a surface cut by the oxy-acetylene flame is somewhat harder and stiffer than the original metal and has good ductility. Such a surface is apparently the equal or the superior of a milled surface, in physical properties.

Bending Tests of Structural Steels to Show Effect of Various Methods of Cutting

Material and Cutting Method	†Load (Lb.)	Angle of Bend (Deg.)
Steel Plate		
Machined	1,580	180
Cut with blowpipe	1,670	180
⅛" of blowpipe-cut edge machined off	1,560	180
Sheared	1,250	37
I-Beam Web		
Machined	1,450	180
Cut with blowpipe	1,625	180
Angle Bar (A)		
Machined	2,510	72
Cut with friction saw	1,840	18
Angle Bar (B)		
Machined	2,230	180
Cut with friction saw	1,500	29

*Linde Air Products Co., New York.

†Maximum load required to bend the specimen to a U-shape (if possible) in the American Welding Society standard fixture.

Steel Corporation Officials Visit Chicago Plants

Elbert H. Gary, chairman, and James A. Farrell, president, of the United States Steel Corporation, and other chief officers of the company and its principal subsidiaries, made an inspection trip through the corporation properties at South Chicago, Ill., and Gary, Ind., on May 7. Mr. Gary and his party arrived at South Chicago on a special train after a trip north from Birmingham. The party inspected the new Gary Tube Co.'s plant, the Gary works of the Illinois Steel Co. and the Gary plants of the American Sheet & Tin Plate Co. and the American Bridge Co., as well as South Works of the Illinois Steel Co. at South Chicago. In the party were the following:

Elbert H. Gary, chairman United States Steel Corporation; James A. Farrell, president United States Steel Corporation; W. J. Filbert, comptroller of the corporation; E. W. Pargny, president American Sheet & Tin Plate Co.; Taylor Allderdice, vice-president National Tube Co.; August Ziesing, president American Bridge Co.; A. F. Banks, president Elgin, Joliet & Eastern Ry.; B. F. Affleck, president Universal Portland Cement Co.; E. J. Buffington, president Illinois Steel Co. and Gary Land Co.; G. G. Thorp, vice-president Illinois Steel Co.; T. W. Robinson, vice-president Illinois Steel Co.; T. J. Hyman, secretary-treasurer Illinois Steel Co.; F. R. Sites, secretary to the chairman United States Steel Corporation.

Judge Gary also participated in ceremonies incident to the dedication of the new McKinlock Memorial Campus of Northwestern University, Chicago, on which the Elbert H. Gary Library of Law will be built, as well as four other large buildings.

Farm Machinery Exports Highest in Four Years

March exports of agricultural implements, amounting to $7,515,871, are reported by the Department of Commerce to be the highest figure in the past four years, being more than 25 per cent above the $5,927,038 of March, 1924. About 40 per cent of the total was represented in tractors, which aggregated $3,000,902. These included 5473 wheel tractors and 103 track-laying tractors.

Increasing the Use of Steel Sheets

Executives Discuss Means to Combat Inroads of Other Materials—Simplification a Factor —Quality Guarantees

LAST YEAR'S annual meeting of the sheet steel executives at White Sulphur Springs, W. Va., gave its approval to sheet steel simplification and launched its trade extension campaign. This year's meeting*, held at the same place last week, therefore took some of the character of a gathering to hear reports of progress in connection with those efforts. In the main the reports were progressive. There were some who believed that the trade extension movement could stand speeding up and the injection of militancy into the advertising, but generally it was held that the results so far attained had pretty well measured up to expectations. Outside of the fact that it had not yet corrected the light sheet roofing evil, sheet simplification not only was an accomplished fact but was permitting some big savings to both the manufacturers and the distributors, Walter C. Carroll, chairman Board of Review, Sheet Steel Simplification, reported.

AN interesting development of this year's meeting was the unanimous decision that hereafter the makers of galvanized sheets shall brand seconds as such. Hitherto, such sheets have gone out unbranded and a considerable percentage has found its way into consumption as prime steel. Manufacturers frequently have found themselves in price competition with jobbers and the sale of seconds into consumption as prime sheets has of course reacted unfavorably on the material, when the poorer sheets have not sustained expectations based on prime sheets. The master brand†, which is to be used as a quality guarantee by companies cooperating in the sheet steel trade extension campaign, can be applied only on prime quality sheets. The consumer now is doubly protected on galvanized sheets through this action, which calls for branding seconds as such.

The fact that sheet steel prices are much depressed through overproduction was a subject of discussion, both in the formal sessions and in informal groups of those attending the meeting. There were suggestions that serious times were ahead unless there was soon a realization that production is too great for the demand.

The meeting, now regarded as an annual event, brought together the executives of 32 independent sheet steel manufacturers. The formal business program was on the lines of last year and the year before. Addresses and discussions of the first day were under the general topic of Administration; on the second day, Distribution; on the last day, Production.

Depressed Price Situation

The dominant note of the first business session on Tuesday morning was the depressed sheet steel price situation created by overproduction. W. S. Horner, president National Association of Sheet and Tin Plate Manufacturers, in his talk on "The Sheet Steel Industry," decried what he termed "speed mania" in production and Severn P. Ker went even a step further in his address on "Executives' Responsibility to Stockholders and the Public," by declaring that the entire responsibility for low and ruinous prices is with the officials rather than the salesmen and that no company has the right so to conduct business that there are not a fair return for the stockholders and steady employment for workmen, or in a way that injures others engaged in the same business. He feared government interference in business if those managing it now do not conduct it in a way that is for the benefit of the stockholder, the workman, the community and the public.

W. S. Horner, president National Association of Sheet and Tin Plate Manufacturers, the first speaker at this session, at which W. U. Follansbee, president Follansbee Brothers Co., Pittsburgh, presided, touched pretty heavily upon the weak price situation in sheets, resulting from overproduction. After reviewing the activities of the year in connection with the simplification and trade extension programs and business conditions he presented his usual array of illuminating statistics. The first quarter of each of the past three years has been the best in point of production of each of those years.

In emphasizing the importance of the sheet steel industry with relation to the steel industry as a whole, Mr. Horner pointed out that, during 1924, the total production of finished steel in the United States was over 30,000,000 tons, and that of that amount 3,700,000 tons, or more than 12 per cent represented sheet steel. There are only two other divisions of the steel industry which consistently rank higher in tonnage production than does the sheet steel branch: bars and shapes, and plates. From the very nature of those products, it is entirely natural that this should be the case. The total production of finished steel in 1924 was some 5,000,000 tons less than for 1923, being a reduction of about 14 per cent. It is interesting to note that the tonnage of sheets decreased only about 5 per cent, while bars and shapes fell 24 per cent, plates 25 per cent and tubing and pipe 18 per cent.

On Jan. 1, 1923, there was in the United States a total of 659 sheet and jobbing mills; on Jan. 1, 1924, there were 666, while at the first of this year there were 702 and today there are 712. Many persons feel, and not without some sound arguments to justify their reasoning, that the industry has expanded beyond present consumptive demand and that it is only in what might be termed abnormal periods of consumption that the industry can reasonably expect to operate at full capacity.

Percentage classification of shipments of sheet steel for 1924 and 1923 follow:

Distribution of Steel Sheets in Last Two Years

Class	1924	1923
Automotive industry	35.3%	37.7%
Jobbers	13.8	13.0
Electrical manufacturers	7.3	7.8
Roofing	5.9	5.2
Barrel and keg manufacturers	4.5	4.3
Stove and range manufacturers	3.4	3.5
Refrigerator and range boilers	3.2	3.2
Metal furniture	3.0	2.8
Building construction	2.6	2.2
Water troughs and grain bins	2.3	1.9
Export	2.1	4.0
Car builders	1.9	1.8
Farm implements	1.2	1.9
Tack and nail plate	0.4	0.2
Caskets and vaults	0.4	0.2
Miscellaneous	9.9	9.2

Mr. Homer's paper contained, besides the statistics published in THE IRON AGE of May 7, the following figures for 1924 of the entire sheet steel industry:

	1924	1923	1922
Number of mills	702	666	659
Capacity (average)	4,898,000 tons		
Per cent operation	69.9	79.9	77.2
Production	3,700,000 tons		
Per cent production	75.6	93.0	72.7
Sales	4,001,700 tons		
Per cent sales	81.7	76.8	88.6
Shipments	3,639,000 tons		
Per cent shipments	74.3	94.3	73.5
Unfilled orders, Dec. 31	971,000 tons	605,000 tons	987,265 tons

*Very briefly reported last week, on page 1351.

†See page 1342, THE IRON AGE, May 7.

Another interesting compilation covered the results of independent company operations in the first quarter of this year. These figures in net tons, the figures in parentheses being the percentages to capacity, follow:

	1925	1924	1923
Capacity	969,000 (100)	947,000 (100)	912,730 (100)
Operations, per cent	86.7	86.4	88.8
Production	920,550 (95)	882,600 (93.2)	826,600 (90.6)
Sales	783,920 (80.9)	720,700 (76.1)	906,600 (99.4)
Shipments	864,350 (89.2)	790,700 (83.5)	821,800 (90.1)

Mr. Horner's figure picture of the sheet steel industry in 1924 was highly interesting in that it showed an average mechanical operation of 69.9 per cent of capacity, but a production of 75.6 per cent of capacity, and shipments, running close to production, of course showed a high percentage to capacity. The year's production was 2,637,300 net tons and the shipments 2,592,600 tons. These figures relate to 95.1 per cent of the independent capacity and represent 71.3 per cent of the total sheet steel capacity of the United States, having productive capacity of 3,941,000 tons. The remainder is represented by the American Sheet & Tin Plate Co., with a capacity of about 25 per cent, and other companies with a capacity of 3.7 per cent. The basis for the calculation is 7.65 net tons per turn for sheet mills and 22.635 net tons per turn for jobbing mills, with 800 turns or 16 turns per week for 50 weeks, the computing method. The detailed average percentage figures are as follows:

	1924	1923	1922
Mechanical operation	69.9	78.4	77.2
Production	75.6	81.5	74.3
Shipments	74.3	83.7	72.5

Controlling Price Movements

Magnus W. Alexander, president National Industrial Conference Board, New York, in his address, which was a treatise on national and international trade economics, pointed the way by which industrial managers may control instead of becoming victims of price movements. His solution is that the industrial manager keep constantly in mind that price movements are world-wide in their scope and that there cannot be wide changes in one part of the world that do not find reflection or reaction in other parts of the world. The industrial manager must acquire economic intelligence; must study and understand economic forces at work; must stop speculating and instead learn the facts and reason on them. There is no need of the industrial manager being an economist, but rather what Mr. Alexander termed an "economician," one who can acquire and translate economic knowledge. The speaker listed as the foremost factors in economic developments: (1) Natural resources of the field, forest and mines; (2) transportation; (3) productive efficiency; (4) marketing and distribution; (5) purchasing power of the community; (6) the standard of consumption, and (7) international forces.

The address of T. D. McCloskey, general counsel of the National Association of Sheet and Tin Plate Manufacturers, entitled "Growth of Humanity in the Law," was an historical and analytical story of the evolution of law.

Besides his observations about the present conditions in the sheet industry, and their causes, Mr. Ker, speaking on "The Executive's Responsibility to Stockholders and the Public," pointed out in his usual lucid way the responsibility executives have in conducting the affairs of their companies, stating that they have no right to conduct business at a loss, that they owe the workmen as steady employment as possible, that the community is entitled to consideration, since it can not prosper if the industry fails to do so. The sheet industry, he said, is publicly owned and the public which has invested its money is entitled to fair and reasonable return. The politicians (not statesmen), he said, do not look with favor upon prosperous industries, and he urged business conduct of a sort that will not invite political interference. If the country demands only enough material to sustain the operation of only 75 per cent of capacity, a higher rate cannot be reached with profit, he said, and made a strong plea that men of the industry have more faith in each other, and develop more of a spirit of "live and let live."

Trade Extension Campaign

WALTER C. CARROLL, vice-president Inland Steel Co., Chicago, was chairman of the second day's business session, which under the general topic of "Distribution," brought out several interesting papers covering various angles of sales effort and concluded with a discussion of the results to date of the sheet steel trade extension campaign. Mr. Carroll opened the meeting with a review of sheet steel simplification work and what has been accomplished in the past year. He played a prominent part in this movement, which has brought about the elimination of a large number of odd sizes and gages of sheets, to the financial benefit of both manufacturers and distributors. On motion of Severn P. Ker, the gathering gave Mr. Carroll a vote of thanks for his efforts.

There was a paper by Clayton L. Patterson, secretary, Sheet Steel Trade Extension Committee, reviewing the first year's activities of that body. George L. Bennett presented a paper on the sales resistance created by building and fire codes. He was followed by Murray Springer, general director operating branch, Sheet Steel Trade Extension Committee, Chicago, who defined the meaning of the trade extension movement, and who in answer to his subject, "Whither Are We Drifting?" said, "We are drifting down and out unless the best brains and sense of the industry take the helm and steer the boat to the port where we are going." Mr. Springer suggested that advertising is not to be regarded as a liniment to be rubbed on, as apparently it has been by some industries engaged in sales campaigns similar to that of the sheet steel industry. Study of the returns of the industry disclosed that one company in 1924 went into a receivership and another had to be taken over by the banks, while a third lost $100,000. This, he said, resulted from non-observance of the principle of true cooperation and added that it is futile for an industry to spend large sums for advertising if, within the industry, there is sharp price competition.

J. J. Rockwell, vice-president Crosby, Chicago, who made the last address of the session, reviewed the trade extension movement and indicated ways in which cooperating companies could derive benefit from it. He stressed the good of the dissemination of literature furnished by the committee among the company salesmen and the idea that an average as distinct for a super-salesman can be made more valuable.

Must Make Up Lost Ground

Discussion of the results so far attained by the trade extension movement was led by Murray Springer. Most of the speakers indicated satisfaction with the results to date, but there were some dissenting opinions. G. H. Charls, vice-president and general manager, United Alloy Steel Corporation, Canton, Ohio, pointed out that, even while the committee had been active, there had been an increase in the use of prepared roofing equivalent to 387,000 tons of sheet steel and, instead of retrieving a market for 1,000,000 tons of sheet steel annually, the industry now would have to win back 1,387,000 tons. He thought the committee should attempt the organization of the fabricators of sheet steel; that the Steel Corporation should be induced to join the movement, or at least imitate it in its advertising, and that the movement should be enlarged to include

strip steel manufacturers, who are getting into the sheet steel field very strongly. He also made an earnest plea for a more militant form of advertising. Mr. Charls ended with an expression of belief in trade promotion, stating that it was much to be preferred to plant expansion.

George M. Verity, president American Rolling Mill Co., Middletown, Ohio, also thought the movement could stand some speeding up, while Severn P. Ker, Jr., general manager of sales, Thomas Sheet Steel Co., Niles, Ohio, while admitting benefits from the plan, said that the company salesmen had inquired if the committee had for its chief purpose the stimulation of sales of galvanized sheet only. W. U. Follansbee, president Follansbee Brothers Co., Pittsburgh, detected a pausing tendency in the effects of the campaign, a lack of punch among the jobbers, and said there is need of more force to the drive.

Walter E. Watson, general manager of sales, Youngstown Sheet & Tube Co., expressed satisfaction with the movement, as did also C. O. Hadly, general manager of sales, Alan Wood Iron & Steel Co., Philadelphia; E. T. Sproull, general manager of sales, Trumbull Steel Co., Warren, Ohio; George W. Niedringhaus, president, National Enameling & Stamping Co., St. Louis; F. W. Beach, general manager of sales, Mansfield Sheet & Tin Plate Co., Mansfield, Ohio, and Mr. Carroll, who indicated good results by harmonizing the advertising of the Inland Steel Co. with that of the Sheet Steel Trade Extension Committee. W. S. Horner expressed complete faith in the effort, because the committee is a critical one and insistent upon results.

Walter C. Carroll, in his review of sheet steel simplification work, said, in part:

We found that 1819 items of various gages and sizes had been shipped to jobbers during the last six months of 1923; that 85 per cent of the 200,000 tons was embraced by 15 per cent of the items; and that, by using a unit of measurement of 200,000 lb., we could compile from the survey a sheet steel simplification schedule which would, we believed, cover the requirements of jobbers and accomplish those results so necessary in these days of high manufacturing and distributing costs.

Early in the summer of 1924 the simplified schedule of 256 items was completed and was submitted to every sheet manufacturer for criticism and suggestion. All suggestions embracing items to be added were made a part of the schedule and, after every mill had reported on the schedule, we were ready to request the Department of Commerce to call a general conference of sheet steel manufacturers, jobbers, sheet metal contractors, representatives of the Bureau of Standards, Army, Navy, Department of Foreign and Domestic Commerce and the Federal Specification Board.

The conference was held at Atlantic City on Oct. 14, 1924, with Maj. A. E. Foote of the Division of Simplified Practice, Department of Commerce, in the chair. For the purpose of free and clear discussion, the schedule was divided into two parts: (a) Flat sheets in galvanized, box annealed and blue annealed; (b) sheets which are formed into roofing by the mills, or which may be used for roofing by the manufacturing jobber. After making two additions to the flat sheet portion of the schedule, the vote was unanimous to adopt the recommendation of the committee.

Roofing Sheet Problem

The discussion concerning the elimination of sheets for roofing purposes, lighter than full No. 28 gage, was long, interesting, and represented the complete views of all branches of the industry. Many objections to this move, which was at first considered radical by a number of those present, were satisfactorily explained away. When the vote was taken, it was almost unanimous in favor of adoption, the one negative vote being by a manufacturer who felt that we were attempting to progress too rapidly.

It is the custom of the Department of Commerce, when 80 per cent of an industry is in favor of the elimination of waste, which can be accomplished by a schedule such as was presented, to cooperate by mailing formal acceptance blanks to all who are known to be interested. Such blanks were sent to all firms and associations as well as governmental departments. The replies were practically unanimous for acceptance of the schedule, and the Department of Commerce declared it effective as of Jan. 1, 1925.

Almost immediately many jobbers, realizing the economies if they should cut their varieties by only as much as 50 per cent, displayed a willingness to cooperate and, at the outset, exhibited a keener interest than did some of the sheet mill representatives.

It was not expected that any schedule would be immediately operative. But progress has been made; progress worthy of the effort expended, so far as flat sheets are concerned; but there has not been the cooperation either by the mills or the manufacturing jobbers, with a view to correcting the light weight roofing evil, which could reasonably have been expected. The manufacturing jobber admits that it is a move in the right direction, frankly acknowledges that the elimination of unsuitably light gages must be accomplished if sheets for roofing purposes are to recapture the position to which they are entitled, but he continues to demand No. 29 gage or even lighter sheets, because he fears his competitor may be able to secure them.

If six months may be considered sufficient time for a fair trial, let us look this situation squarely in the face. Let those who have suggestions or criticisms to make reduce them to writing, and send them to the chairman of the Board of Review. This board will hold its first meeting at Hotel Cleveland, Cleveland, at 9 a. m. on May 15. A number of suggestions which may affect the schedule already have been received, and earnest consideration will be given to any and all requests which will aid in making the simplified schedule reasonable and workable.

Money Saving Analyzed

Mention was made of the financial saving which is necessarily a part of the elimination of waste program—reduction of warehouse space, larger tonnages of the popular gages and sizes, more rapid turnover, decreased carrying charges, better condition of stock, ability to fill orders completely—all these items are of interest to the distributor. To the mill it means first, better runs in the hot mill, due to greater quantities of such items; second, an improvement in the quality; third, improved warehouse conditions; fourth, better shipping promises.

It is interesting to note that this saving is about equally divided between the distributor and the sheet manufacturer. Assuming that, by adopting the schedule, a distributor reduces by 50 per cent the varieties he has been carrying in stock, the saving from steel works to ultimate consumer has been estimated at $4 per ton. The capacity of sheet mills today is close to 5,000,000 net tons annually. Jobbers distribute 15 per cent in a normal year, and we produce about 4,000,000 net tons in a good year. Hence we can figure a saving on 600,000 tons at $4 per ton, or $2,400,000, to the industry on but 15 per cent of our production. It is not beyond reason to forecast a saving to the country, by the elimination of waste which arises through excess varieties of sheet steel, of $8,000,000 annually should the program, which Secretary Herbert Hoover and his associates have laid down, be followed to its logical conclusion by those who handle and use only one-half of the sheet steel which is produced by our industry.

If we go back about 20 years we will find that between 15 and 20 per cent of the entire sheet mill production of the country was shipped in the form of roofing. While general sheet steel production was increasing from approximately 1,000,000 to 4,000,000 tons annually, roofing fell off to slightly less than 5 per cent at one time. It is encouraging to note that, during the last six months, it has increased to 8 per cent, and it is not unreasonable to predict, when our "master brand" becomes a reality and its merits are known by every user of sheets in this country, that our tonnage in roofing will expand to a figure at least in keeping with general sheet production.

Mental Attitude of Public

Clayton L. Patterson, in his paper, "Trade Extension—Retrospective and Perspective," pointed out that, in the creation and organization of the machinery by which the Sheet Steel Trade Extension Committee plan might be vitalized, there were no precedents to follow and that, while progress has been made, it necessarily has been slow, since the paramount idea was to build for the future and build so well that later adjustments would be unnecessary. Based on the contacts the committee had made, Mr. Patterson declared a pressing need of educating the consuming public to desire and use sheet steel and a more pressing one in effecting a change of mental attitude toward sheet steel by those making the contact with the consuming public.

"I am not qualified," said the speaker, "to state whether or not the sheet steel manufactured today is equal to the sheet iron manufactured a quarter of a century ago, or the sheet steel of the pre-war period. I do not know whether sheet steel roofing cornices, eaves troughs and down spouts erected today will last as long as they are supposed to have lasted in times past. I cannot say with authority that prepared roofings are less economical or copper roofings no more expensive in the long run than sheet steel, but I be-

(*Continued on page* 1465)

Program for Testing Society's Annual Meeting

For the twenty-eighth annual meeting of the American Society for Testing Materials, which is to be held at the Chalfonte-Haddon Hall, Atlantic City, N. J., June 22 to 26, the provisional program includes the following:

For the first session, Tuesday evening, June 23, on wrought iron, cast iron and corrosion, two papers and the reports of the usual committees are scheduled. The two papers are:

"Accelerated Corrosion Tests on Bare Overhead Electrical Conductors" by Frank F. Fowle.

"Evaluation of Corrosion Tests" by E. Blough.

The committees which will offer their regular reports are committee A-2 on wrought iron, A-3 on cast iron, A-7 on malleable castings, A-5 on corrosion of iron and steel and B-3 on corrosion of non-ferrous metals and alloys.

Two papers, besides the regular committee reports, are scheduled for presentation Wednesday morning, June 24, on non-ferrous metals and metallography. They are:

"Softening of Hard-Rolled Electrolytic Copper" by Norman B. Pilling and George P. Halliwell.

"A Note on the Microstructure of Aluminum-Iron Alloys" by E. H. Dix, Jr.

The regular committees which will report on this session are committee B-1 on copper wire, B-2 on non-ferrous metals and alloys, D-14 on screen wire cloth and E-4 on metallography.

For the session on Thursday morning, June 25, steel and fatigue of metals is the general subject. Behavior of steel at elevated temperatures is the principal feature of this program. Besides the reports of committee A-1 on steel, A-4 on heat treatment of iron and steel, and A-9 on ferroalloys, four papers have been prepared for this session as follows:

"Materials Used in High Pressure and Superheated Steam Pipe Line Valves" by J. Kaye Wood.

"A Comparison of the Endurance Limit of Steel in Axial Tension and Compression With That in Bending" by J. M. Lessells.

"Fatigue Tests on Non-Ferrous Metals" by R. R. Moore.

"Typical Static and Fatigue Tests on Steel at Elevated Temperatures" by T. McL. Jasper.

The general session on research, testing, nomenclature and specifications, scheduled for Thursday evening, June 25, will have as an important feature the presentation of a paper on "The Purchasing of Materials on Specification" by Dean Harvey. Three committees will report at this session, E-9 on correlation of research, E-1 on methods of testing, and E-8 on nomenclature and definitions.

The regular business session, at which the annual address of the president F. M. Farmer, will be delivered and the annual report of the executive committee will be presented, will be held as usual Wednesday evening, June 24, followed by an informal dance and smoker.

The nominating committee for officers for the following year has selected for president, W. H. Fulweiler, chemical engineer, United Gas Improvement Co., Philadelphia, and for vice-president, H. F. Moore, professor of engineering materials, University of Illinois, Urbana, Ill.

COMING MEETINGS

May

Taylor Society. May 14 to 16. Spring meeting, University of Michigan, Ann Arbor, Mich. Dr. H. S. Person, 29 West Thirty-ninth Street, New York, managing director.

American Society of Mechanical Engineers. May 18, 19, 20 and 21. Spring meeting, Milwaukee. Calvin W. Rice, 29 West Thirty-ninth Street, New York, secretary.

American Iron, Steel and Heavy Hardware Association. May 19-21. Book-Cadillac Hotel, Detroit. A. H. Chamberlain, Marbridge Building, New York, secretary-treasurer.

Master Boiler Makers' Association. May 19 to 22, inclusive. Convention, Sherman Hotel, Chicago.

Chamber of Commerce of United States. May 20 to 22. Thirteenth annual meeting, Washington.

American Management Association. Production Executives' Division. May 21 and 22, Chicago. W. J. Donald, 20 Vesey Street, New York, managing director.

American Iron and Steel Institute. May 22 General meeting, New York. E. A. S. Clarke, 40 Rector Street, New York, secretary.

National Association of Purchasing Agents. May 25 to 28. Tenth international convention of the Informashow, Milwaukee Auditorium. Walter H. Wenzel, general chairman.

American Society for Steel Treating. May 28, 29 and 30. Spring sectional meeting, Hotel Van Curler, Schenectady, N. Y. W. H. Eisenman, 4600 Prospect Avenue, Cleveland, secretary.

Metal Importers' Association Being Formed in China

At a recent meeting in Shanghai, China, in the rooms of the Shanghai General Chamber of Commerce, preliminary steps were taken to organize a metal importers' association. J. S. S. Cooper of Arnhold & Co., Ltd., acted as chairman. The men present represented American, British, French, Belgian, German, Dutch, Chinese and other nationalities, and those requested to serve on committees were glad to do so. The temporary secretary, Wong Kah Shan, addressed the meeting, speaking of the importance of forming a metal importers' association to exchange views and to formulate common policies in dealing with important problems that come up from time to time. He said that the association would not attempt to regulate prices and to eliminate competition, which he regarded as the life of trade.

"We do not," he said, "propose a set of ten commandments as to what thou shalt do and what thou shalt not do, which renders necessary the imposition of pains and penalties for a breach of any of them as insisted by some, but we propose only to render the path of our trade, which is now full of pitfalls, smoother and easier to tread. It is for all those who are willing to avail themselves of this advantage, while at the same time to contribute what they can for the common good. This association is for mutual help and protection. It poses as a friend to all and a menace to none. It is open to all that are in the trade, and excludes none."

To Consider Sheet Steel Simplification at Cleveland

A meeting of the committee on sheet steel simplification is to be held on Friday morning, May 15, as part of the meeting of the metal branch of the National Hardware Association in Cleveland. Walter C. Carroll, chairman of the board of review on sheet steel simplification, will receive suggestions at Hotel Cleveland of those interested in changes or additions to the simplified plan. The plan has already been approved by more than 80 per cent of the producers, distributors and consumers, as necessary before the division of simplified practice of the Department of Commerce regards a simplified program as effective.

The Foremen's School, sponsored by the Milwaukee Association of Commerce, awarded 1800 diplomas at the fifth annual graduation dinner and entertainment, held May 13 at the Auditorium, that city. The attendance at the school reached 4538 men and women, the largest number on record, and more than 300 Milwaukee employers took advantage of the service. Frank Frey, Jr., of Geuder, Paeschke & Frey Co., is chairman.

Demand Revision of Anti-Trust Acts

Amerian Supply and Machinery Manufacturers Meeting with Southern Supply and Machinery Distributors Urge Legislation Permitting More Cooperation

LEGISLATION should be inaugurated by Congress at the earliest moment, looking to the relief of industries from "the grievous burdens which the severity of the Sherman Law has placed upon the plain business interests of this country." This legislation should take the form of an amendment "permitting closer cooperation among business men generally while forbidding agreements which are calculated to produce monopolies."

Such was the opinion of the members of the American Supply and Machinery Manufacturers Association as expressed in a resolution unanimously adopted at the annual convention at the Atlanta Biltmore Hotel, Atlanta, on May 5, 6 and 7. The resolution stated that the courts "sought to prevent and do prevent useful and necessary cooperation among business men who have neither purpose nor ability to constitute a monopoly." The charge is made that as a result of court interpretations of anti-trust legislation, "merchants and manufacturers have against their will been driven to a state of ruthless uneconomic and wasteful competition among themselves which has resulted in vast damage and loss to all branches of our trade and commerce, obviously enhancing costs of distribution and creating a situation not parallelled in any civilized country."

A committee of three, consisting of S. Horace Disston, Henry Disston & Sons, Inc., Philadelphia, chairman; Dixon C. Williams, the Chicago Nipple Mfg. Co., Chicago; and Charles W. Beaver, Stamford, Conn., was appointed by the association to secure early consideration by Congress of the revision of the Sherman Law and its amendments and to confer with committees from other organizations that have taken similar action.

This action, following so closely upon that taken by the National Supply and Machinery Distributors' Association at its Atlantic City convention, is significant of the rapidly growing sentiment among business men that a radical step is necessary so that firms can take steps to curb the ruinous price cutting which prevails today.

In an address before the joint session of the American Supply and Machinery Manufacturers Association and the Southern Supply and Machinery Dealers Association, Dixon C. Williams pointed out that 85 per cent of the jobbers and manufacturers closed the year 1924 either at a loss or without profit and that remedial legislation whereby business firms could legally confer together and agree on prices and what constituted a fair profit should be introduced in Congress.

The convention of the association, which was held jointly with that of the Southern Supply and Machinery Dealers Association, was well attended, more than 400 delegates of the two organizations registering. Both associations devoted a generous portion of their sessions to the discussion of ways and means of eliminating disastrous price competition. Mornings were given over to separate meetings of the two organizations, while joint sessions marked the afternoons.

Direct Sales by Makers Proving Costly

The number of small shipments that manufacturers are making to dealers' customers by express or parcel post is proving tremendously costly, according to Charles W. Beaver, Stamford Conn., in addressing the first joint session of the two associations on Tuesday afternoon, May 5. He said that the present policy of hand-to-mouth buying is partly responsible for the numerous orders amounting to $2 or less which are received by manufacturers. Statistics show that many firms lose heavily on these small sales, for which handling expenses are as great as for a sale of $1,000 or more. Alvin M. Smith, Smith-Courtney Co., Richmond, Va., expressed the opinion that all shipments to customers should be made from dealers' warehouses. Members in discussing this problem stated that they try to educate their customers to buy in greater quantities whenever possible.

Salesmen should be thoroughly trained if they are to sell equipment for power transmission, stated William Staniar, E. I. du Pont de Nemours & Co., Wilmington, Del., in a paper on "The Relation of Salesmen to Power Transmission." Sales managers are largely to blame for sending out ignorant men to represent their concerns. The inexperienced minority of salesmen who know nothing about belting and make themselves ridiculous do a tremendous injury by prejudicing many buyers against the majority of salesmen, who are efficient.

In discussing "What is delaying the standardization of transmission?", T. C. Keeling, Nashville Machine & Supply Co., Nashville, Tenn., noted that jobbers

Presidents of Supply and Machinery Associations

John C. Roy,
I. B. Williams & Sons, Dover, N. H., re-elected president of American Supply and Machinery Manufacturers Association

George Winship,
Fulton Supply Co., Atlanta, elected president of Southern Supply and Machinery Distributors Association

generally try to carry as many sizes and kinds of products as possible, hoping thereby to add to their sales and to their profits. Jobbers are also influenced by the variety of products shown in manufacturers' catalogs. Mr. Keeling advocated the elimination of many odd sizes and told of the work that has already been done on standardization.

Distributor Pays Too Little Attention to Selling

The value of the missionary men sent out by manufacturers was stressed by W. W. Doe, Alabama Machinery & Supply Co., Montgomery, Ala., in talking on the responsibility of the manufacturer to the dealer, at the combined meeting of the two associations on Wednesday afternoon, May 6. Horace Disston, Henry Disston & Sons, Inc., Philadelphia, said that distributors give undue importance to the buying and stocking of goods when their primary function should be to sell goods. He suggested that it behooves the distributor to maintain the resale prices of manufacturers in order to enjoy the full benefits of the differentials allowed. He maintained that there is today a necessity for greater aggressiveness in selling and that jobbers should back up this increased selling effort with adequate stocks at proper distributing points. In commenting on turnover, he stated that this word has been used too much until it has become a detriment both to the jobber and to the dealer. Mr. Disston emphasized that "no sale is so profitable as an immediate sale. The loss of volume and profit due to delayed sales is important."

"It seems that there must be a large percentage of altruistic folks in the jobbing business, because many of them persist in sharing their profit with their customers, much to the disgust of jobbers who quote the standard resale price in vain and to the embarrassment of the manufacturer who is doing his best to prevent his line being used as a football until it ceases to be of interest to the jobber because he can no longer sell it at a profit." Such was the declaration of A. S. Gould, sales manager Oster Mfg. Co., Cleveland, in an address at the afternoon session.

Many manufacturers are unknowingly selling their products below cost, charged Frederick H. Payne, Greenfield Tap & Die Corporation, Greenfield, Mass., in an address at this session on "Misinformed Competition." He urged both manufacturers and distributors to have efficient cost systems in their business and said that firms should enter into agreements not to sell goods below cost.

Speaking on the same subject J. L. Pitts, Brown-Roberts Hardware & Supply Co., Ltd., Alexandria, La., stated that "we have reached an era when we are volume mad and profit foolish." He asserted that concessions in price will not create more business, because consumers buy only what they need in the supply field and then quit buying. He claimed that many jobbers are frightened into meeting unprofitable prices, due to misleading information from their road salesmen, and that many jobbers err in their method of determining their cost of merchandise plus transportation charges. Mr. Pitts set forth the need for men who can combat low prices with intelligent sales information and the need for sales managers who will demand this attribute as the foremost qualification for salesmanship.

N. A. Gladding, E. A. Atkins & Co., Inc., Indianapolis, in commenting on business conditions, asserted that there has been too much propaganda about quick turnover and that retailers and jobbers must necessarily carry some items that do not move rapidly.

Discussion of the benefits to be derived by jobbers from manufacturers' missionaries brought out the fact that most distributors find them of valuable assistance.

Various advertising schemes were discussed by N. A. Gladding; R. B. Skinner, Skinner Chuck Co., New Britain, Conn.; Clay C. Cooper, Crawford Publishing Co., Chicago; D. R. Egbert, International Trade Press, Inc., Chicago; and W. R. C. Smith, W. R. C. Smith Publishing Co., Atlanta.

The newly-elected officers of both associations were introduced at the joint session on Thursday, May 7, which was scheduled for the afternoon, but was advanced to noon to permit delegates to leave several hours earlier than they had expected.

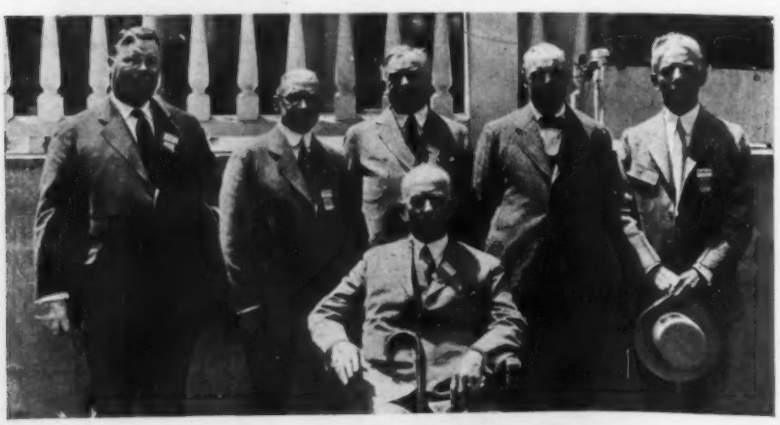
As an appreciation of the work that he had done for the American Supply and Machinery Manufacturers Association, President John C. Ruf was presented with a gold watch and also with a beautiful plate for Mrs. Ruf. The presentation was made eloquently by Dixon Williams.

President Ruf Reelected by American Association

IN the convention of the American Supply and Machinery Manufacturers Association John C. Ruf, I. B. Williams & Sons, Dover, N. H., president of the association, expressed regret over the inability to hold a triple convention this year, with the National Supply and Machinery Distributors' Association included, but said prospects are bright for a triple convention again in 1926. He thanked Irving Lemaux, chairman of the membership committee, and Frederick D. Mitchell, secretary of the association, for their valuable services during the past year. The fact was brought out that the association made a net gain of 30 members during 1924-1925.

Preference was expressed for St. Louis, as the next convention city.

John C. Ruf was reelected president of the association at the Thursday morning session. This is the first time in the organization's history that a president has been accorded this honor. Other officers selected for 1925-1926 are: W. R. Simpson, American Pulley Co.,



Past Presidents of American Supply and Machinery Manufacturers' Association:

Standing (left to right)—Harry E. Dickerman, Chisholm-Moore Mfg. Co., Cleveland, 1916-1917; *George Bailey, Oliver Iron & Steel Corporation, Pittsburgh,* 1919-1920; *N. A. Gladding, E. C. Atkins & Co., Inc., Indianapolis,* 1921 - 1922; *Farnham Yardley, Jenkins Brothers, New York,* 1915-1916, *and Charles W. Beaver, Stamford, Conn.,* 1920-1921

Sitting—Joseph M. Hottel, Delta File Works, Philadelphia, 1923-1924

Philadelphia, first vice-president; D. S. Brisbin, Columbus McKinnon Chain Co., Columbus, Ohio, second vice-president; and W. W. Sanderson, Carborundum Co., Niagara Falls, N. Y., third vice-president. The executive committee will consist of Robert B. Skinner, Skinner Chuck Co., New Britain, Conn., chairman; Horace Armstrong, Armstrong Brothers Tool Co., Chicago; W. C. Henning, A. Leschen & Sons Rope Co., St. Louis; B. O. Payne, Alexander Brothers, Philadelphia; and W. F. Wright, Wright Mfg. Co., Lisbon, Ohio. Frederick D. Mitchell, New York, was appointed secretary-treasurer for another year.

Selling Discussed by Southern Distributors Association

VOLUME versus profit is responsible for more business mortalities than are due to credit losses, according to the annual report of Alvin M. Smith, secretary-treasurer of the Southern Supply and Machinery Dealers Association, in the executive session of that organization on Tuesday morning. He pointed out that jobbers should strive particularly for improvement in sales on staple lines, the days of "leaders" being definitely past. Mr. Smith quoted an editorial from THE IRON AGE to the effect that "trade associations exist for the purpose of protecting capital investment and making it more effective in serving the public." He also called attention to the new rules of procedure of the Federal Trade Commission, modifying its policy regarding action against unfair practices of a private nature redressible in the courts. He said that often weaknesses in resales are the result of the failure of manufacturers to take action on and, frequently, even to investigate, complaints. Mr. Smith paid tribute to the "splendid support" given the association by the trade press.

It was reported at this session that the association was cooperating fully in standardization and in the elimination of unnecessary sizes and kinds of products. The association's membership was reported to be 141. The principal transportation problem coming before the association in the past year was the reduction of the carload minimum on mill shipments of wrought pipe from 46,000 lb. to 36,000 lb. The association tried unsuccessfully to prevent the reduction.

The report of the executive committee recommended the substitution of the word "distributors" for "dealers" in the name of the organization. Upon its adoption by the organization at this session, the name is now the Southern Supply and Machinery Distributors Association. The executive committee also stated in its report that the summary of trade conditions made in the secretary's office shows "the most amazing and demoralized price situation that possibly ever has confronted this industry. Not only was this the case throughout 1924, but the present time does not show any great improvement, either in volume of business to be had or in the price situation." The committee contended that "the greatest evil today is poor selling, the striving for volume without respect to profits." The association, upon the recommendation of the executive committee, adopted, with one small change, the code of business ethics of the Chamber of Commerce of the United States.

Activities of the Southern association looking toward a standardization of trade terms, particularly the cash discount, will be continued. Exchange of credit and trade information strictly within legal lines was discussed. The subject of "Why is a warehouse distributor or dealer?" was dismissed with the comment that more and more manufacturers each year are finding that they can distribute their products most economically through established jobbing houses.

Rejected Resale Plan for Pipe Fittings

The members, on the recommendation of the executive committee, rejected the resale plan on cast-iron and malleable fittings as advocated by the fittings committee of the National Pipe and Supplies Association, because the plan is incompatible with the best interests of the association.

That the purpose of trade associations should be dissemination of knowledge among members, correction of abuses in the trade, removal of prejudices of dealers against their competitors and promotion of higher ethical standards, was the opinion expressed in a paper by James Biggs, Hardwicke-Etter Co., Sherman, Tex. Mr. Biggs said that the public does not care how much money a business firm makes so long as it is made and used justly and honestly. He scored the abuse of the cash discount, stating that it is petit larceny to take a cash discount after the agreed time has passed. The manufacturer is partly to blame for this abuse, however, due to failure to mail his invoice promptly or failure to attach the original bill of lading.

Inordinately Low Price of Bolts, Nuts and Rivets

Today bolts, rivets and nuts are at the lowest price that they have ever commanded, considering the price of steel, said Charles J. Graham, president of the Bolt, Nut and Rivet Manufacturers' Association, in an address. He emphasized that companies in his branch of industry have been operating in many cases at a loss and said that the basis of the present unsatisfactory business situation is selfishness. Mr. Pitts, president of the association, voiced the hope that manufacturers of bolts and rivets would take the distributor into consideration on large orders and permit him to make a profit. He said that profits were never so meager as they are today and the dealer cannot afford to speculate in the steel business.

George Winship, Fulton Supply Co., Atlanta, led a discussion on advertising that closed the Wednesday morning meeting.

At the concluding session on Thursday morning the incoming president of the association was authorized to appoint a committee to study the convention proceedings and to formulate recommendations for correcting existing evils and abuses in the jobbing trade. These recommendations are to be presented at the next annual convention.

Handling of goods on a margin of 2½ or 5 per cent does not stimulate demand among customers, according to Mr. Pitts in discussing the increased tendency of distributors to handle business on a 5 per cent gross profit, especially heavy goods. Mr. Winship placed the responsibility directly on the shoulders of the dealers, declaring that the manufacturers are willing to allow a liberal profit if the jobber will only take it instead of giving part of it away to his customers. C. W. Beckner led the discussion on the benefits to be derived from local round table conferences participated in by those in the same line of industry. Members agreed that such meetings were helpful.

Officers of Southern Association

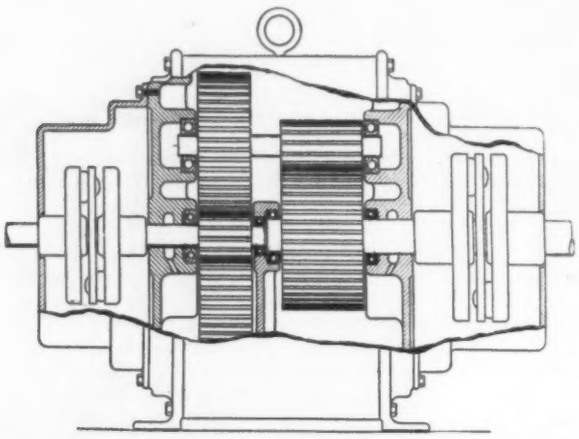
Mr. Winship, was elected president for the coming year. Other officers elected were L. J. Larzelere, Farquhar Machinery Co., Jacksonville, Fla., first vice-president; T. F. Bailey, Banks-Miller Supply Co., Huntington, W. Va., second vice-president; and Alvin M. Smith, Smith-Courtney Co., Richmond, Va., secretary-treasurer. J. L. Pitts, Brown-Roberts Hardware & Supply Co., Ltd., Alexandria, La., retiring president of the association, will become the chairman of the executive committee. Other members will be James Biggs, Hardwicke-Etter Co., Sherman, Tex.; R. M. Williams, Little Rock, Ark.; and T. C. Keeling, Nashville Machine & Supply Co., Nashville, Tenn.

Delegates and their ladies thoroughly enjoyed the social program arranged for the joint convention by the entertainment committee. On Tuesday evening a "southern potpourri," followed by dancing, was held at the Biltmore, while a ball at the Piedmont Driving Club was the feature Wednesday evening.

Ball Bearing Spur Gear Speed Reducer

A spur gear speed reducer which, among other features, has all shafts mounted on ball bearings has been placed on the market by the Albaugh-Dover Mfg. Co., 2100 Marshall Boulevard, Chicago. The device usually comprises three countershafts uniformly spaced about the center line of the driving shafts, the countershafts carrying the speed change gears that connect the driving and the driven shafts. The three countershafts extend across the reducer housing, and are journaled in the end walls of the casing. The unit is entirely inclosed and the housing is oil tight.

Extreme reduction is attained in the transmission by having an internal gear meshing with pinions on the projected ends of the countershafts outside of the main housing. The internal gear together with the



Single, Double or Triple Reduction Gears Are Provided on One Set of Shafts

shaft couplings connected to the driving and the driven ends of the shafts are inclosed by housing extensions, which form safety covers, protecting the gears and the bearings from dust.

It is claimed that there is no loss in efficiency due to multiplicity of bearings and bearing surfaces, there being no inside bearings that may become oil clogged or may run dry because of inability to inspect them. Any ratio of speed change may be effected within the limits of gear ratios, and it is claimed that the reducers may be run to the right or left hand with equal facility.

High-Strength Cast Iron

Carl Emmel, superintendent of the foundry of Thyssen & Co., at Mülheim, Ruhr, Germany, has developed a new melting process in the cupola, whereby a casting of remarkable physical properties is said to result. Pending completion of his patent applications, the details of procedure are withheld, but it is stated that the materials used are those customarily used in cupola practice. Hans Holzwarth, 95 Harrison Street, East Orange, N. J., represents both Mr. Emmel and Thyssen & Co., in connection with this matter in this country.

Physical properties of test bars, cast individually, are said to show a tensile strength of 59,000 lb. per sq. in., and a bending strength represented by withstanding a load of 89,000 lb. per sq. in. between bearings 24 in. apart and with a deflection of 0.59 in., in a specimen having 1.18 in. diameter as a rough casting. Under these same conditions a finished casting of the same diameter withstands 100,000 lb. per sq. in. and shows a deflection of 0.78 in.

Test bars taken from the middle of thick cast iron pieces are credited with a tensile strength of 33,500 lb. per sq. in., when the bar with a diameter of 0.78 in. was taken from a 4.7-in. diameter casting and with 54,800 lb. per sq. in. in a test bar of 0.59 in. diameter taken from a 1.65-in. diameter casting. The hardness is given as from 241 to 255 Brinell.

Castings with thick and thin sections adjacent to each other are reported to be made without flaws. It is suggested that some of the principal fields of application may be as cylinders for steam engines, steam turbines, internal combustion engines, compressors and pumps, rolls for paper mills, gear wheels and similar parts.

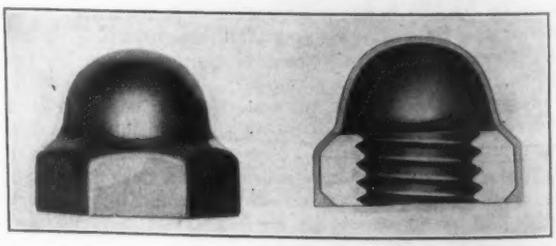
John Ericsson's Lathe in a Foundry at Houghton, Mich.

The historic lathe constructed by John Ericsson, the designer and builder of the Monitor, which defeated the Merrimac on March 9, 1862, is located in the shop of the Carroll Foundry, Houghton, Mich., according to a communication from that company published in the Chicago *Tribune*, May 1. It says in part:

"Ericsson first built the lathe so that he could finish the turrets that he used on the Monitor and which cut such a big figure in the war, and which was the principal reason for winning the war, because, by having the guns on the Monitor so that they could be turned or swiveled into any position, it gave it a big advantage over the others whose guns were stationary. We have the lathe and it is not in use at this time. Several of the most prominent Swedes in this country wanted to purchase it as a memento to their countryman, the late John Ericsson, who was also the inventor of the screw propeller, which is also something we should all remember, as the screw propeller is a wonderful invention. We feel the Government should own the lathe."

Non-Corrosive Acorn Nut

An acorn nut, which is a steel hexagon nut with a protecting brass shell arranged as shown in the accompanying illustration, has been placed on the market by the Ferry Cap & Set Screw Co., 1253 Scranton Road, Cleveland. These nuts are available either in brass, nickel plated barrel finish or nickel plated polished and buffed. They are 15/16 in. across flats and are carried in stock tapped ½, 9/16 and ⅝ in. for both S. A. E. and U. S. S. threads. Other threading may be furnished special. A smaller size, measuring ¾ in. across flats and tapped to ¼, 5/16, ⅜ and 7/16 in., for both S. A. E. and U. S. S. threads, will be placed on the market later.



Steel Hexagon Nut with Protecting Brass Shell

Silent Chain Drives from Stock

Standardizing on the manufacture of silent chain drives, the Link-Belt Co., Chicago, announces that it has placed in operation a new plan by which complete lines of these drives, from ¼ hp. to 10 hp. are now available for immediate delivery. Stocks are held by distributors located in many cities and practically any reduction may be had from one to one up to seven to one. Back of the distributors are the reserve stocks in the company's Indianapolis and Philadelphia warehouses.

Conveniently arranged tables published in book form for distribution by the company contain the working out of the engineering problem back of this idea. The movement is one further step in the simplification of manufacture and distribution of goods which has received so much publicity lately from the activities of the Department of Commerce.

The Outlook for Foreign Iron Ore

Imports This Year Are Expected to Fall Below Those of 1924—What Lake Ores Cost at Eastern Furnaces

JUST as foreign iron ore imports in 1924 showed a decline from those of 1923 it is now believed in ore trade that 1925 imports will be still lower. The 50-cent reduction in the price of Lake Superior ores for the 1925 season brings such ores more nearly on a parity with foreign ores, even at furnaces near the Atlantic seaboard. In fact, it is only a few of the latter furnaces which can hope to save money by purchasing abroad.

Of last year's imports 56 per cent came from Chile, largely if not wholly for the Bethlehem Steel Corporation; and in addition that company brought in a good deal from Cuba. Aside from the Bethlehem furnaces the principal user of foreign ore is the Alan Wood Iron & Steel Co., Philadelphia, whose supplies have come mostly from Sweden and North Africa.

Prices on Lake and Imported Ores

There has been little contracting in foreign ore this year, and what is still coming in from abroad is on old contracts. Whether some furnaces which have been using liberal quantities of foreign ore will take more Lake Superior ore in view of the reduction in price of the latter remains to be seen, but this is a possibility. The present delivered price of Lake Superior non-Bessemer ore at furnaces in the eastern Pennsylvania district is $6.27, this including the freight rate from nearest Lake Erie port and 8c. per ton for handling from vessel to car. Assuming a price of 9.50c. per unit on foreign ore comparable in quality with Lake Superior non-Bessemer, the delivered price of a ton of foreign ore of 51.50 per cent metallic iron would be $5.69½ at Swedeland, Pa.; $5.79½ at Pottstown, $6.10 at Lebanon and $6.30 at Wharton, N. J., the last named having a freight rate from Philadelphia of $1.41 per ton. Thus it is that while Swedeland, Pa., enjoys an apparent advantage of 57½c. per ton on foreign ore, Wharton, N. J., finds the price on Lake Superior ore lower by 3c. per ton. Of course some of the Eastern furnaces used as a basis for comparison have local ores and thus are not a factor in either the Lake Superior or foreign ore market, but their locations are mentioned here merely as geographical indicators of the extent to which foreign ore can penetrate into the United States.

At Pittsburgh and Johnstown there is certainly no market for foreign ores, and as a matter of fact little or none ever gets that far. Johnstown can buy Lake Superior ore $1.12½ per ton cheaper and Pittsburgh saves $1.42½ as compared with the delivered cost there of equivalent foreign ores.

The Bethlehem Steel Corporation naturally brings in each year a large part of its ore supply from its own mines in Chile and Cuba. Much of this ore is unloaded at Sparrows Point. On ore shipped from Philadelphia or New York docks to Bethlehem the company has a rate of $1 per ton.

Main Sources of Foreign Ores

Sweden, French Africa and Spain, in the order named, last year furnished the United States with the greatest quantities of foreign ore aside from that brought in from Chile and Cuba. Customs statistics since the first of the year tend to indicate that the largest tonnages are still coming from Sweden and French Africa.

There have been no recent sales of importance to establish the present market value of various grades of imported ore, but it is assumed by importers that their principals would be inclined to accept slightly lower figures in view of the reduction on Lake Superior ore. However, 9.50c. per unit is about the lowest price that has thus far been authorized on lump ore, although some lower grade ore which has to be sintered before use has been sold or offered at about 8c. to 8.50c. per unit. Some of the higher grade Swedish and French African ores were sold last year at 10c. to 10.50c. per unit.

Wabana ore from Newfoundland was used to a large extent in the United States before the war, but has not been coming in recently. One lot of 50,000 tons was sold over a year ago, but no more has been disposed of. As has heretofore been reported, hundreds of thousands of tons annually of the Wabana ore is moving to Germany.

Representation of Foreign Ores

Most of the important ore interests abroad are represented in this country by direct agents. A few of the American ore brokers have no special representation but buy wherever they can do so to advantage. The principal specialists in foreign ore are the following:

Park & Williams, Inc., Real Estate Trust Building, Philadelphia. Direct representative of Trafikaktiebolaget Grangesberg-Oxelösund, Stockholm, Sweden.

Rogers, Brown & Co., New York and other principal cities.

A Comparison of the Prices of Foreign and Lake Superior Iron Ores Delivered at Seaboard and Pennsylvania Consuming Points

Points of Delivery	Average Price of Foreign Ore, Philadelphia*	Freight Rate from Philadelphia (Unloaded at Sparrows Pt.)	Delivered Price	Lake Erie Price	Freight from Nearest Lake Port†	Delivered Price	Net Margin in Favor of Foreign Ore	Net Margin in Favor of Lake Superior Ore
Sparrows Point	$4.89		$4.89	$4.25	$2.02	$6.27	$1.38	....
Chester	4.89	$0.80½	5.69½	4.25	2.02	6.27	0.57½	....
Swedeland	4.89	0.80½	5.69½	4.25	2.02	6.27	0.57½	....
Wharton	4.89	1.41	6.30	4.25	2.02	6.27	....	$0.03
Bethlehem	4.89	1.00	5.89	4.25	2.02	6.27	0.38	....
Pottstown	4.89	0.90½	5.79½	4.25	2.02	6.27	0.47½	....
Coatesville	4.89	0.90½	5.79½	4.25	....	....	....	....
Reading	4.89	1.11	6.00	4.25	2.02	6.27	0.27	....
Lebanon	4.89	1.21	6.10	4.25	2.02	6.27	0.17	....
Johnstown	4.89	1.86½	6.75½	4.25	1.38	5.63	....	1.12½
Pittsburgh	4.89	2.01½	6.90½	4.25	1.23	5.48	....	1.42½

*The price of foreign ore used in this table is an average delivered price obtained by assuming a unit price of 9.50c. and based on ore containing 51.50 per cent metallic iron.

†The freight rate from Lake Erie port includes an 8c. charge for handling from vessel to car.

Direct representatives of Naylor, Benzon & Co., Ltd., London, England, factors in Algerian and Spanish ores.

Sota & Aznar, 25 Broadway, New York, owners of mines in Spain.

W. W. Hearne & Co., Real Estate Trust Building, Philadelphia. Direct representatives of Fergusson, Wild & Co., Ltd., London, England, factors in Spanish, African and Egyptian ores.

Charles F. Rand, 71 Broadway, New York.

Frank Samuel & Co., Harrison Building, Philadelphia.

Maguire, Inc., Cunard Building, Philadelphia. Representing F. Haeberlin, Ltd., London, England, factor in Algerian ore.

E. Arthur Tutein, Inc., Real Estate Trust Building, Philadelphia; also Boston and New York.

Pilling & Co., Bankers' Trust Building, Philadelphia. Agents for Wabana (Newfoundland) ore.

Iron & Ore Corporation of America, 11 Broadway, New York, subsidiary of William H. Muller & Co., Inc., which has extensive ore interests abroad.

Steel Company Earnings Analyzed

About 4.8 Per Cent Was Average Return in 1924 on Stockholders' Investment in Companies Representing 85 Per Cent of Country's Ingot Capacity

COMPILATION of figures of earnings of steel companies, taken from their annual reports for 1924 and tabulated here for 20 companies representing about 85 per cent of the ingot capacity of the United States, shows 4.80 per cent earned in 1924 on the stockholders' investment. The stockholders' investment is taken to represent the sum of the common stock, the preferred stock and both appropriated and unappropriated surplus. Earnings are tabulated also on the capital stock, combining common and preferred issues.

In calculating the earnings, all depreciation and depletion have been deducted from the reported gross earnings of the several companies. In addition, bond interest has been deducted as being in essence a payment of interest upon borrowed money.

Listings of stocks, surplus, etc., are those as of Jan. 1, 1924. Earnings are those for the year 1924. The companies are listed approximately in order of size, based upon rated ingot capacity. It will be noted that only one of the 20 companies represented earned more than 10 per cent on the stockholders' investment. As a matter of fact, only two earned more than 7 per cent. Among those companies which did not show an actual deficit, there were five which earned less than 3 per cent on investment and only five in the entire list earned over 6 per cent. The general average was 4.80 per cent.

Working back on the earnings upon the two classes of capital stock, considered as a unit, we find a somewhat different case, for on this basis companies which made earnings showed for the most part more than 6 per cent return. The Steel Corporation, on this basis, earned almost 10 per cent and the great size of that aggregation of operating units brought up the average for all to 7.58 per cent. Even on this basis, however, outside of the two companies which showed a deficit, seven others failed to earn as much as 4¼ per cent.

Steel Corporation's Proportion

It will be noted that the United States Steel Corporation, with 45 per cent of the common stock and 55½ per cent of the preferred stock of all 20 companies listed, had more than two-thirds of all the surplus and made five-eighths of all the net earnings. While the Steel Corporation made 5.45 per cent on the total investment covered, the 19 other companies, considered as a group, made only 3.98 per cent. While the Steel Corporation made 9.79 per cent on the two classes of capital stock, the others made only 5.46 per cent.

Return on Stockholders' Investment in 1924 in Steel Companies Having Roughly 85 Per Cent of Country's Ingot Capacity

(Amounts Given in Thousands of Dollars)

Company	As of Jan. 1, 1924 — Common Stock	Preferred Stock	Total Surplus	Total Stockholders' Investment	Net Earnings for Year	Earnings on Stockholders' Investment	Earnings on Common and Preferred Stock
United States Steel Corporation	$508,303	$360,281	$693,650	$1,562,234	$85,067	5.45%	9.79%
Bethlehem Steel Corporation	180,152	58,776	126,189	365,117	8,916	2.44	3.73
Youngstown Sheet & Tube Co	75,000	14,241	23,128	112,369	7,598	6.76	8.51
Jones & Laughlin Steel Corporation	57,332	55,846	30,808	143,986	8,526	5.92	7.53
Inland Steel Co	35,000	10,000	16,800	61,800	5,517	8.93	12.26
Republic Iron & Steel Co	30,000	25,000	33,004	88,004	1,918	2.18	3.49
Wheeling Steel Corporation	39,369	24,217	9,645	73,231	865	1.18	1.36
Colorado Fuel & Iron Co	34,235	2,000	1,231	37,466	521	1.39	1.44
Crucible Steel Co	55,000	25,000	21,519	101,519	4,250	4.19	5.31
American Rolling Mill Co	21,000	11,906	13,314	46,220	2,845	6.16	8.65
Pittsburgh Steel Co	14,000	10,500	7,593	32,093	1,559	4.86	6.36
Donner Steel Co	4,523	9,000	633	14,156	543	3.83	4.02
Sharon Steel Hoop Co	14,297	1,000	Deficit	15,297	491	3.21	3.21
Trumbull Steel Co	15,692	9,999	Est.–9,100	34,791	2,244	6.45	8.73
Otis Steel Co	3,705	8,831	9,756	22,292	*1,479*	*6.64*	*11.80*
National Enameling & Stamp. Co.	15,592	10,000	9,311	34,903	874	2.50	3.41
Central Steel Co	1,223	6,189	14,633	22,045	2,796	12.68	37.72
Gulf States Steel Co	11,216	2,000	3,927	17,143	979	5.71	7.41
Interstate Iron & Steel Co	4,000	2,060	2,789	8,849	431	4.87	7.11
Eastern Steel Co	3,743	2,015	2,453	8,211	*61*	*0.74*	*1.05*
Total, 20 companies	$1,123,382	$648,861	$1,029,483	$2,801,726	$134,400	4.80	7.58
Total, except Steel Corporation	615,079	288,580	335,833	1,239,492	49,333	3.98	5.46
Total, except Steel Corporation and Bethlehem	434,927	229,804	209,644	874,375	40,417	4.62	6.08
Steel Corporation per cent of total listed	45.25	55.52	67.39	55.77	63.30		

Note: Figures in italics represent deficits (two companies).

PRODUCTION AND CONSUMPTION NEARLY BALANCED

Prices Are Still Sagging, but an Early Improvement in the Market Is Indicated by the Following Factors

(1) Production is declining and is now nearly back to normal.
(2) Unfilled orders have declined for two months in succession, while
(3) Activity in consuming industries has been well maintained. It therefore seems probable that
(4) Consumers' stocks are being liquidated.

This analysis of iron and steel prices and production appears monthly, as do analyses of labor, general business and manufacturing costs, in rotation. Next week the general business situation will be forecast.

BY DR. LEWIS H. HANEY
Director, New York University Bureau of Business Research

Market Steadies as Consumers' Stocks Decrease

MODERATE curtailment in production and a gradual readjustment in the price structure have been the recent tendencies in the iron and steel industry. Consumption is active, and consumers are liquidating stocks instead of ordering new supplies.

The high level of consumption continues to be a source of ultimate strength. In the more important lines, consumption in April appears to have been higher than in January or February and fully up to that in the same month of 1923 and 1924.

According to reliable estimates the production of automobile manufactures in April will show the largest figures on record, and automobile exports have been notably large. Trade estimates are to the effect that automobile production will hold up well through the summer. It is to be noted that the larger companies have already contracted for third quarter materials.

Tin plate demand is active both for domestic consumption and for exports.

Agricultural implement manufacturers are working on fairly large schedules.

Judged by the activity of consuming industries, requirements for bars and sheets should continue large, while in the case of plates, pipe, and shapes, the demand should be only fair.

Recently, too, indications of a firmer stand with regard to some items have been apparent on the part of steel producers, notably bars.

Iron Output Drops Sharply

IN April there was a net loss of 25 blast furnaces. This makes a severe reduction, one of the largest in recent months. As a result, *the percentage of blast furnaces active has fallen considerably below the 60 per cent level. Taken together with the fact that steel production has now fallen back nearly to the line of normal trend, this indicates that the outlook for stabilization in the industry at an early date is good.*

As shown elsewhere, the price of pig iron is a trifle high in comparison with scrap. It is also a little out of line with coke, billets, and bars. The price of scrap, which is rightly regarded as having considerable barometric value, is now plainly nearing bottom levels.

While the pig iron market may possibly work a little lower, the continued activity in consuming industries makes it difficult to see how such a movement could be long sustained.

Steel Output Cut; Prices Still Weak

THE production of steel ingots was curtailed sharply in April. The average daily production (shown in Fig. 1) dropped from 161,482 tons in March to 137,982

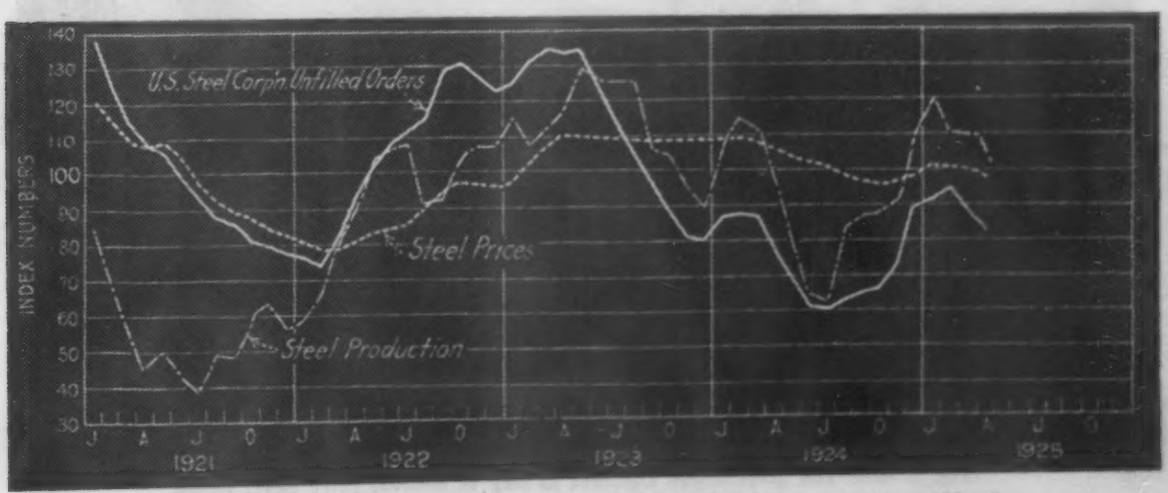


Fig. 1—Unfilled Orders and Steel Production Both Moved Downward Last Month

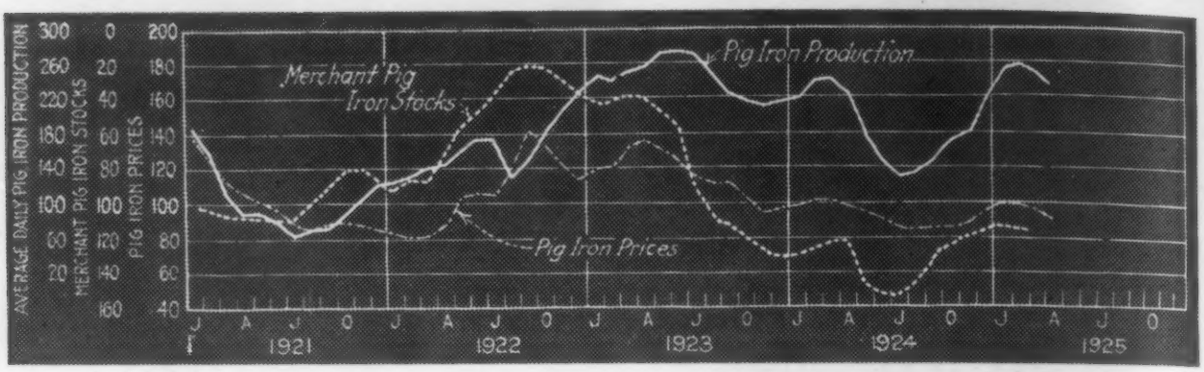


Fig. 2—Pig Iron Output Now Close to Estimated Normal Requirements

tons in April, a decrease of 14.6 per cent.

Allowing for seasonal variation and normal growth, the decrease in the total production of steel ingots between March and April was 7 per cent.

Steel production has now fallen back to a level which is practically normal. It is below the levels of early 1923 and early 1924. Further curtailment will bring it below the line of normal trend and will probably mark the beginning of greater firmness.

The unfilled orders of the United States Steel Corporation at the end of April amounted to 4,446,568 tons, a decrease of 416,996 tons from March, or 8.6 per cent.

Only a small part of this decline can be attributed to the usual statistical correction for seasonal conditions. After making such allowance, it is found that the unfilled orders at the end of April were only 82.2 per cent of the 1921 average, against 89.2 per cent in March.

In view of the good consumption of steel which prevails and the decrease in production, not much if any further decline in unfilled orders seems likely at the present time.

Prices Not Yet Stabilized

ALL the price curves shown in Fig. 3 moved downward in April.

The largest decrease occurred in the case of scrap, which has now fallen about $6 below the recent peak.

The next largest declines occurred in the general price average of all commodities (Bradstreet's) and pig iron. The smallest decline occurred in the composite average of finished steel.

It is fairly probable that some further decline will occur in the average price of pig iron and of finished steel. Usually the general commodity price index anticipates the trend of iron and steel prices, and the trend of the Bradstreet index is still downward. Furthermore, the price of steel scrap in the past has nearly always anticipated an upward turn in iron and steel prices. As the scrap marke has not yet turned upward, no immediate strength in iron and steel is likely.

On the basis of past performance it seems probable that the price of heavy melting steel scrap will go below $16 on the present move, but it is clearly nearing the bottom.

Although not shown in Fig. 3, the price indexes maintained by the Bureau indicate that wire nails, billets, and bars are a little low in comparison with coke and pig iron, and should therefore not decline much, if any more.

The next analysis of economic conditions in the iron and steel industry will appear in these pages on June 11.

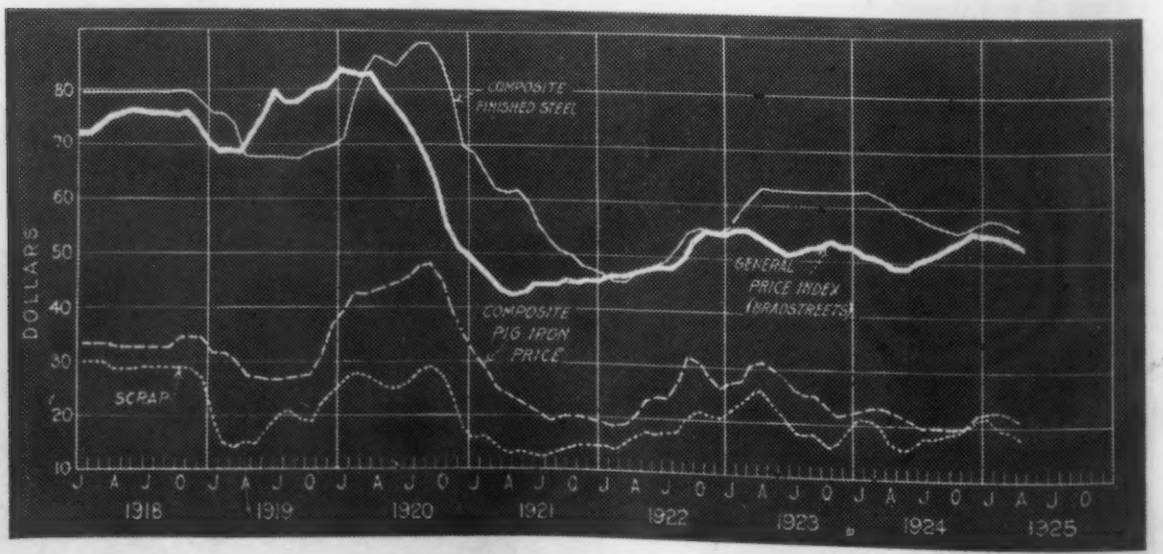


Fig. 3—Iron and Steel Prices Continue to Sag as General Price Level Drops

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APRIL STEEL OUTPUT

Decrease from March 23,500 Tons or 14.5 Per Cent in Daily Rate

A sharp decrease in the country's steel ingot production took place in April. At 137,982 gross tons per day the decrease from March was about 14.5 per cent. The April volume was the smallest since December.

The statistics of the American Iron and Steel Institute, which have been adjusted on the basis of completed data for 1924, show the April output of the companies which made 94.43 per cent of the country's total in 1924 (94.84 per cent in 1923) was 3,387,699 tons. Assuming that the 5.57 per cent not reporting produced at the same rate, a total April production is indicated of 3,587,524 tons. The corresponding annual rate is about 42,900,000 tons or nearly 79.5 per cent of capacity. In March the corresponding figure was approximately 92.5 per cent.

The table gives the production by months of the different kinds of steel, together with the estimated daily rate for all companies.

Monthly Production of Steel Ingots, Reported by Companies Which Made 94.43 Per Cent of the Steel Ingot Production in 1924

(Gross Tons)

Months, 1925	Reported Production: Open-Hearth	Bessemer	All Other	Calculated Monthly Production All Companies	Approximate Daily Production, All Companies
Jan.	3,262,748	689,996	11,960	4,198,564*	155,502*
Feb.	2,931,964	602,042	13,014	3,756,243*	156,510*
March	3,336,169	614,860	13,633*	4,198,520*	161,482*
April	2,857,802	515,715	14,182	3,587,524	137,982
4 Mos.	12,388,683	2,422,613	52,789	15,740,851	152,824
1924					
Jan.	2,766,534	667,032	12,577	3,649,913**	135,182**
Feb.	2,902,641	695,905	14,085	3,826,246**	153,050**
March	3,249,783	706,801	15,260	4,206,699**	161,796**
April	2,575,788	573,381	12,356	3,348,466**	128,787**
4 Mos.	11,494,746	2,643,119	54,278	15,031,324**	144,532**
May	2,060,896	425,099	6,643	2,640,034**	97,779**
June	1,637,660	310,070	2,622	2,065,676**	82,627**
July	1,525,912	241,880	5,162	1,877,789**	72,223**
Aug.	2,042,820	361,781	5,764*	2,552,891**	98,188**
Sept.	2,252,976	409,922	6,864*	2,827,625**	108,755**
Oct.	2,505,403	438,468	7,058*	3,125,418**	115,756**
Nov.	2,479,147	459,349	8,403*	3,121,149**	124,846**
Dec.	2,811,771*	546,506	11,707*	3,569,251**	137,279**
Total	28,811,331*	5,836,194	108,506*	36,811,157**	117,984**

*Revised.
**Adjusted.

TRUMBULL IRON RECORDS

Notable Performance of Stack at Warren, Ohio, in Three Different Years

It is one of the rules of both the Chicago and Eastern States Blast Furnace and Coke Oven Associations that there shall be no stenographic reports either of talks or discussions at their meetings, the idea being that both addresses and discussion of them will be freer and franker if those participating know that there will be no permanent record of their statements. Papers presented at such gatherings are not turned over to the two organizations, but remain with their authors. The plan is successful in that it usually produces the scope of discussion desired, but only those with unusually retentive minds can take away much useful information.

J. S. Fraser, resident manager, Trumbull Cliffs Furnace Co., Warren, Ohio, was the speaker at the spring meetings of the two associations. At both meetings he presented some interesting data on the output and the burdens of the furnace of which he has charge. The Trumbull-Cliffs furnace is 91 ft. high with a hearth diameter of 18 ft. 6 in., a bosh of 22 ft. 6 in. and a bosh angle of 79.75 deg.

During the last quarter of 1922, 61,693 tons of iron or an average of 670 tons per day were made with by-product coke as the fuel. Of the iron 8440 tons was made from purchased scrap and the remainder from ores. The coke consumption was 1877 lb. per ton of iron exclusive of breeze screened out and not charged.

For the corresponding quarter of 1923, this furnace made 72,669 tons of iron, or an average of 808 tons per day, of which 2141 tons was made from scrap, and the remainder from ores, on a coke consumption 1952 lb. per ton of iron, also exclusive of breeze. In this quarter the coke was made in the Uniontown district in rectangular ovens.

For the last quarter of 1924, this furnace made 71,090 tons of which 9829 tons was produced from purchased scrap, on a practice of 1877 lb. of by-product coke per ton of iron.

The record consecutive monthly period for this furnace was in November and December, 1923, and January, 1924, when 75,756 tons were made, with the use of 4828 tons of purchased scrap, and an average coke consumption of 1936 lb. per ton of iron. These outputs were made from ores furnished by the Cleveland-Cliffs Iron Co., joint owners of the furnace with the Trumbull Steel Co., which uses the hot metal produced. These ores were 51½ per cent iron, and with scrap additions averaged 54½ per cent iron. During the other months of each year that this furnace has been operating, it has been a consistently high tonnage producer.

The notable feature of these runs was how closely the coke practice ran, when calculated into dry coke, which was for each quarter respectively, 2061 lb., 2014 lb., and 2009 lb., coke breeze being included in these figures, and again in the carbon equivalent of these figures, which was 1801 lb., 1763 lb., and 1740 lb.

Southern Exposition in New York—Paintings of Steel Plants Are Shown

At the Southern Exposition being held at Grand Central Palace, New York, May 11 to 23, there are elaborate displays of the products of Alabama, Tennessee, Virginia and other Southern States. The Alabama exhibit is participated in by the Tennessee Coal, Iron & Railroad Co., Gulf States Steel Co., Alabama Power Co., numerous cast iron pipe companies and clay product companies.

An important feature of the exhibition is the display of the 43 paintings in pastel by Roderick D. MacKenzie. In THE IRON AGE of Jan. 1, 1925, one of these pastels was reproduced. The pictures are works of great beauty and faithfully show the operations of steel plants, portraying particularly the spirit of flame and heat and control by the ingenuity of man. Mr. MacKenzie, who spent many hours at night in the steel plants in which the paintings were made, doing his work in the heat and dirt, is in attendance at the exhibition.

Iron and Steel Exposition

Announcement has been made of an exposition devoted to iron and steel, electricity, combustion, metallurgy, machinery and safety, under the auspices of the Association of Iron and Steel Electrical Engineers. The exposition will occupy the Philadelphia Commercial Museum, which has an open floor space of more than 2½ acres, from Sept. 14 to Sept. 19. Booths have been laid out to the number of 224. The convention hall adjoins the exhibition space and there is a restaurant in the building. The convention hall has capacity for seating 1200. Information regarding space and other matters connected with the exposition may be obtained from the secretary of the association at 706 Empire Building, Pittsburgh.

The Republic Iron & Steel Co., whose Philadelphia office has been in the Morris Building for many years, moved on May 9 to the new Packard Building, Chestnut and Fifteenth Streets.

ESTABLISHED 1855

THE IRON AGE

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Rail Longevity

THAT steel rails are lasting longer there is accumulating proof. Definite measurement of the increase in the service period is difficult, but many railroads have taken part in the life extension movement in recent years and there is a variety of testimony to the fact that they are getting results.

The most obvious factor is the now common use of 100-lb. rails and heavier. Such rails were 27 per cent of the total rolled in 1914; last year they were 48 per cent. There is every indication that the figure will go steadily higher. Then there is the effort of important roads to perfect rail joints and give better support for rail ends so that they will more effectively withstand the pounding of wheels under today's heavy loads. By this means the number of battered ends has been reduced and consequently the number of replacements. Some roads have adopted the practice of welding metal upon the battered end and so keeping the rail in service. One large system has given this treatment to more than 200,000 rails.

The recent adoption of the 39-ft. rail as standard instead of the 33-ft. rail will also lessen the number of replacements. Adopted at first because it reduced materially the number of battered ends, the longer rail has now come into use on nearly 80 per cent of the country's lines.

In alloy or heat-treated rails the developments have been unimportant in comparison with those mentioned above. Indications point, however, to a larger use of a lower carbon, higher manganese steel with an increase both in endurance and efficiency of the rail.

Naturally the greater vogue of 100-lb., 110-lb. and heavier rails has been looked upon as likely to increase the rail percentage of the total finished steel output. This percentage, as has been pointed out many times, has been dwindling as the uses of steel for other than railroad purposes have been growing so spectacularly. It will be interesting to see how the tonnage balance will be struck, in yearly orders for rails, between the measures the railroads are taking to prolong the life of the rail and, on the other hand, the rapidly increasing replacement of 70- to 90-lb. rails by those running 100 lb. to the yard and higher.

Hocus-Pocus and Steel Treating

IF a piece of steel is heated to redness and dropped into water, it becomes very hard. That is a strange fact.

Nobody knows when that secret was discovered, it was so long ago. Like other industrial arts which have been known for centuries and handed down from master to apprentice, the art of steel treating has become incrusted with hundreds of superstitions. So perhaps it is not surprising that the man before the fire, the "practical" heat-treater, is still looking for the hocus-pocus which will protect a die and bring it forth unwarped, without a check and uniformly hard.

Here arises a great difficulty. The practical man seldom understands that in order to be an expert, he must either learn by rote and by sad experience a large mass of seemingly unrelated data about a number of steels and alloys, or he must dig down deeper and get at the fundamentals. He is attracted by the apparently nonchalant manner of the educated engineer. Apparently, some simple principles underlie the practice of his art, and most of the operating troubles seem to be cured by their use. But here, as elsewhere, there is no easy road to learning. Even though the truth is always simple, it requires much study before the mind can understand its simplicity.

Consider this situation as it applies to the hardening of metals. What are some of the experimental facts?

Iron, copper, lead and other pure metals are not hardened by heat treatment. Iron and copper can be greatly hardened by cold work. Lead cannot.

A small amount of carbon increases the hardness of iron many times, especially after quenching. Copper cannot be hardened materially by

any alloying element, except in such great quantities that the nature of the metal is changed.

A carbon steel tool is soft and tough. Quenching it makes it very hard and brittle; a mild reheating toughens it materially. On the other hand, a manganese steel casting is glass hard and brittle. After quenching it is still very hard, but is now very tough; and the alloy cannot be softened by tempering.

High-speed steels contain a moderate amount of carbon; carbon steel tools, twice as much. High-speed steels must be heated to a temperature that would ruin a carbon steel tool. The former may be cooled in air; on the other hand, the latter must be quenched very rapidly in water. Finally, high-speed steel is tempered at a heat which would draw all the hardness out of the carbon tool.

Metals are regarded as being stable at ordinary temperatures, but some aluminum alloys, after a moderate heating, will increase in hardness and strength for days.

That is enough to indicate the great complexity of the experimental data. It ought also to indicate that such contradictions can be harmonized only by an explanation of hardness that is based on something common to all metals and alloys. So it is. Modern metallurgical theory refers the matter back to the atom and the atomic arrangement in the crystalline structure—things common to all metals—and says that "hardness varies as the crystalline disorganization."

That is simply said; but it needs a deal of information to know what it means. Even at that, it requires far less effort to gather this information than to puzzle indefinitely in a maze of heat treatment data. Furthermore, it is the only way to solve new and unexpected problems. A steel treater can learn how to harden high-speed milling cutters, and he will do pretty well so long as he has to do nothing but harden high-speed milling cutters. But what would he do if his firm wanted to manufacture a hard aluminum casting? Before the problem was solved he would find that atoms and space lattices and slip planes are useful things in everyday work, and thereupon the search for the hocus-pocus would be abandoned.

"Master Brand" Sheets

IN its last comment on the galvanizing problems of the sheet steel manufacturers THE IRON AGE said some months ago:

> If the sheet galvanizing industry as a whole wants to increase the sale of its product for roofing and siding, and head off the competition of other substances, its plan of procedure will be that which some of the leading factors have advocated, namely: First, put enough zinc on the sheet; second, advertise to the consuming public what it is doing.

The "master brand" plan adopted by the Sheet Steel Trade Extension Committee, as described in our issue of last week, is in line with both the above stipulations. There was ground for the complaint that many galvanized sheets—more since the war than before—had an insufficient coating of zinc, and the associated manufacturers, who constitute 92 per cent of the independent sheet making capacity and 68 per cent of the total in the country, have not blinked that fact. In devising the "master brand" they would make it possible for the consumer to identify in the market galvanized sheets which carry the standard amount of zinc. This is described as the heaviest coating for each gage that it is possible to apply and yet allow of the fabrication of the sheet without peeling or scaling. Tests are provided for and inspectors will be appointed who will make cuts from the sheets at the mill and send them to a testing laboratory.

A decisive step, and an indispensable one in the campaign for the regaining of a part at least of the roofing trade that has been taken from the galvanized sheet mills, is the withholding of the brand from galvanized sheets lighter than No. 28 gage. It has long been a defense, when galvanizing practice was attacked, that the manufacturers simply responded to trade demand in supplying light gage sheets thinly covered with zinc. The costly experience of recent years, with a falling off in the galvanized roofing trade amounting to hundreds of thousands of tons per year, has made it plain that the manufacturer himself must make the final decision as to the fitness of his product for a contemplated service. The regime of the "master brand" means, therefore, in addition to much else that is creditable, that the manufacturers hereafter assume full responsibility for their product and pledge their united efforts to the maintenance of the high standards they have set up.

Record Steel Production

PRODUCTION of steel ingots in the first four months of this year made a new high record and that despite the decrease of 14.5 per cent from March to April. The previous high for the first four months was 15,343,354 tons, in the first third of 1923. In the first four months of this year, containing the same number of working days, the production was 15,740,851 tons.

There has been for several years a marked tendency for production to run high in the early months of the year. In 1920 there was heavy production in the first three months, but railroad disability caused a sharp drop in April and prolonged the scarcity of steel. In 1921 there was light production throughout the year and recovery was only well under way at the beginning of 1922. In 1923 and 1924, and now this year, production ran very high in the first four months, the totals for these four-month periods having been as follows:

	Gross Tons
1923	*15,343,354*
1924	*15,031,324*
1925	*15,740,851*

Continuance of the four-month rate would make 47,000,000 tons for this year. No such tonnage is going to be made, and no wonder, for it would be 8 per cent above the best previous record for a calendar year and no less than 35 per cent above the average of the six years since the war. When this year opened there was good promise in

underlying conditions, and very rosy promises on the part of the business prophets. Conditions still are relatively good, but one of the familiar readjustments must occur, production meanwhile running below consumption whereas it has previously run above. The average production in the six years was 34,750,000 tons.

The April ingot report contains a revision of monthly figures in 1924, indicating that final returns for the year are practically completed. Previously it had been considered that production was approximately 36,650,000 tons. The annual figures since the war are given below. The record year is not in the list. That was a war year, 1917, with 43,619,200 tons:

	Steel Ingot Production Gross Tons
1919	*33,694,795*
1920	*40,881,392*
1921	*19,224,084*
1922	*34,568,418*
1923	*43,485,665*
1924	*36,811,157*

The production of "steel" as usually mentioned includes the tonnage of steel castings, which has not yet been reported for 1924. In only three of the eight preceding years did the production of steel castings fall below 1,000,000 tons, while in one year it closely approached 1,500,000 tons. What would be called the total production of steel last year, therefore, was in the neighborhood of 38,000,000 tons.

Steel Corporation Unfilled Tonnage

SCRUTINIZING the variations in the United States Steel Corporation's unfilled obligations month by month, it is interesting to observe that often when the tonnage decreases the distance ahead in which the deliveries are likely to fall increases, and vice versa. This does not always occur, but when it does the reversal is due, of course, to the rate of production and shipping varying more than does the tonnage. If a given unfilled tonnage is equal to four months of shipping at a certain rate, it is equal to six months of shipping at two-thirds of that rate.

As reference to the Steel Corporation's unfilled tonnage is much in vogue as a business indicator, and perhaps more outside the steel trade than within, this is a point that should be borne in mind. If the tonnage decreases it should not be inferred that the corporation will run out of orders in a smaller number of months. More likely, the period will be longer, the change in the general situation causing some customers to take deliveries at a slower rate.

The general rule may be referred to in another way—that fluctuations in the operating rate are much greater than fluctuations in the volume of unfilled tonnage. It has not been unusual for the corporation's shipments to increase or decrease by 10 per cent from one month to the next, whereas a 10 per cent change in one month in the unfilled tonnage is distinctly unusual.

For the purpose of the present comment a table was compiled covering each month of the three calendar years 1922, 1923 and 1924, showing first the number of working days the unfilled tonnage represented on a capacity basis, and second the number of days represented by an operation at the estimated rate in the month which began with the unfilled tonnage reported. In the unfilled tonnage set against full operation low points in the three years were respectively 80, 82 and 59 days, high points being 129, 138 and 89 days. Dividing the tonnage by the estimated daily rate of shipping in the month following, low points were respectively 119, 105 and 94 days, high points being 169, 153 and 135 days.

The average unfilled tonnage during the three years was equivalent to 94 shipping days at full capacity, and to 125 shipping days at an average of the various rates of actual operation. The tonnage rarely went up to six months of operation at the rate existing at the time, and it never went much below four months. The actual number of tons, on the other hand, was more than twice as much at the maximum as at the minimum.

In other words, the conditions which operate to increase or decrease the tonnage likewise operate to increase or decrease the rate of shipping. To apply the principle to present circumstances, the recent maximum in the unfilled tonnage was 5,284,771 tons on March 1, while the May 1 tonnage was 4,446,568 tons. The former represented 99 shipping days at capacity and the latter only 83 days, but if the tonnage were divided by the rate of shipping in the month or two following, the latter computation, according to the precedents cited above, would bring out the greater number of days.

CORRESPONDENCE

Patent Engineers

To the Editor: An article in THE IRON AGE of March 5 discusses what is in the w[illegible] being a new branch of the engineering profe[illegible], that of "patent engineer." The discussion is by [illegible]. Naumberg of the Saco-Lowell Shops, Lowell, Mass., whose main point is that patent attorneys are usually not skilled engineers, nor does their business involve the technical or scientific side of patent development or mechanical invention. The average inventive type of engineer is usually not versed in the intricacies of patent law or procedure; thus there appears to be necessary a bridge between these two professions.

Mr. Naumberg's examples of the possible activities of competent members of this hyphenated profession show that the field is great, and its fuller recognition would be of extreme value both to patent attorneys and to manufacturing corporations of all kinds.

The purpose of this letter is to show that there are at least a few who have practiced this art. I have specialized in it for the last 24 years, with the exception of the war period. It is an interesting profession, as it brings one into close touch with the ablest of patent attorneys and with all sorts of up-to-the-minute ideas in mechanical invention. Further, there is always the speculative element of ability to bring together the combination of brains and money which may at any time "strike a winner."

ROBERT W. A. BREWER.

Philadelphia, May 4.

For Higher Tariff on Imported Steel

Tariff Commission Approached by Bar Manufacturers and Treasury Department Is Asked to Proceed Under Anti-Dumping Act

GEORGE W. ARMSTRONG, president Texas Steel Co., Fort Worth, Tex., and W. P. Davis, general manager Knoxville Iron Co., Knoxville, Tenn., have addressed a letter to the presidents of the steel companies of the country asking their cooperation in the movement for increased valuations on foreign steel imported into the United States, as well as in the application that has been filed with the Federal Tariff Commission for a recommendation to the President of an increase in the import duty on finished steel under the flexible provision of the tariff. In bringing the matter before the Tariff Commission, Messrs. Armstrong and Davis represented their respective companies and also the Reinforcing Concrete Bar Institute. In their letter to the steel company presidents Messrs. Armstrong and Davis say:

We sought to have foreign steel valued upon the basis of the American market, as provided in paragraph (b) of section 315 of the Tariff act, which would increase the rate from 3-10c. to 5-10c. per lb. We asked the commission to impose a further increase of 50 per cent, which would mean an increase from the present duty of $6 per ton to $15 per ton, or a net increase of $9 per ton.

The members of the commission without exception appeared to be sympathetic and willing to make a thorough investigation of the situation. However, they expressed very grave doubt as to the President's authority under the law, to increase the rate 50 per cent upon the American valuation plan. While we believe that the law gives him this authority, our interpretation of the statute, which is ambiguous, may not be the correct one.

Our discussion with the commission developed the fact that its procedure under the law is necessarily slow, and that our quickest and most effective remedy is through the Director of Customs of the Treasury Department under the Anti-Dumping act of 1921. We were assured that we could take this course without prejudice to our case before the commission.

We therefore discussed the subject informally with H. A. Hayward, Assistant Director of Customs (the Director, Mr. Camp, being out of the city), who suggested that we file a formal complaint, stating in writing the representations that we made to him verbally. Mr. Hayward assured us that upon the filing of this complaint the Treasury Department would have its foreign representatives investigate the facts and then take such action as might be warranted under the law and facts.

Customs Director Asked to Act

Under date of May 5 President Armstrong and General Manager Davis addressed a letter to the Director of Customs, Treasury Department, Washington, calling attention to the low prices at which foreign steel is being quoted at European points of export. They assert that they are manufacturers of merchant steel bars and other steel products and that they are being seriously injured by the importation of like foreign articles "which are being sold in our trade territory and other markets in the United States at much less than market value" of the same. We further represent that the "purchase price and the exporters' sales price" of said articles are less than the "foreign market value" of the same and also less than the "foreign cost of production."

Numerous citations are made from the German, French and Belgian market reports in THE IRON AGE showing the low rates of wages paid steel workers in those countries; also the low prices at which various steel products are being sold for export.

STEEL BARS AT 1.70C. AT HOUSTON

The letter states further that steel bars and other steel articles are being imported in large quantities through Atlantic, Pacific and Gulf ports and offered for sale and sold at from $10 to $30 per ton less than the American market and at less than the average American cost of production; that foreign steel bars are now being sold at $34 per ton at Houston, Galveston and other ports, with freight and duty and other charges paid.

"The Pittsburgh market for bars, it is added, is now $40 per ton, the Chicago market $42, while the Galveston market would normally be the Chicago market plus the freight, or about $60 per ton. The petitioners state that "the price of $34 per ton is less than that at which any steel company in America can produce such bars at the present wage level." In proof of their representations the petitioners cite from THE IRON AGE of April 25, 1925, the report of the Prussian trade minister for March, 1925, complaining that German firms are exporting at much below their home prices and below production costs. August Thyssen is also quoted to the effect that "export prices obtained by Germany do not cover production cost" and therefore that "an agreement must be come to with other countries to regulate the price level."

BROAD TARIFF AGITATION

Dumping of Holland Pig Iron Charged—Protection Asked in India

WASHINGTON, May 12.—Indications are that the anti-dumping unit of the Treasury Department in New York will make a report within a week or so concerning the inquiry it has conducted with regard to alleged dumping of Indian pig iron in the United States. It is understood that the anti-dumping unit is about done with its work and is now gathering material from the books of importers.

Coming with the report is another that further inquiry as to alleged dumping of pig iron from other countries, particularly Holland, is being sought by domestic makers of pig iron. The anti-dumping unit also has been petitioned formally by fabricators and dealers in steel reinforcing bars to do what it can to protect them against incoming shipments which compete with them. The petition follows the visit here recently by a committee, which called upon the Tariff Commission and the Customs Division, the latter of the Treasury Department. The committee was headed by George W. Armstrong, president of the Texas Steel Co., Fort Worth, Tex., and W. P. Davis, general manager of the Knoxville Iron Co., Knoxville, Tenn.

Along with these activities on the part of domestic producers comes a report to the Department of Commerce from Assistant Trade Commissioner E. G. Sabine, Bombay, India, stating that Indian industries are seeking tariff protection. Steel and locomotive interests have applied to the Department of Commerce of India for "assistance, protection or investigation by the Tariff Board." Manufacturers of many lines, among them being electric wires and cables, machinery, sprinklers, brass and copper, galvanized steel poles, galvanized hardware, brasses and brass work for machinery, carriage underframes, and parts of wagons, buckles, panel pins, tacks, rivets, etc., brass and gun metal and steam fittings have complained that the duty on manufactured articles is lower than the duty on materials imported [illegible] used for their manufacture and it is proposed to r[illegible] most of these cases to the Tariff Board for investiga[illegible].

Revised Duties for Japan

Discontinuance of the Anglo-Japanese conventional tariff, effective March 11, 1925, has been followed by revision of the Japanese import duties on certain kinds of iron and steel plates and sheets, Acting Commercial

Attaché Frank Rhea, Tokio, informs the Department of Commerce.

The former conventional duties of 0.30 yen per 100 kin on silicon steel plates and sheets not exceeding 0.7 mm. in thickness, of which silicon forms more than 1 per cent of the total weight, and 0.70 yen per 100 kin on ordinary tinned iron and steel sheets, have been retained as the general tariff rates in place of the former general duties of 15 per cent ad valorem on these items. The duty on galvanized iron and steel plates and sheets, corrugated or not, is increased from the conventional rate of 1.20 yen per kin to a general rate of 18 per cent ad valorem. Henceforth, pig iron as enumerated in the Anglo-Japanese conventional tariff will be subject to the rates of the Japanese general tariff. It is understood that goods shipped to Japan prior to the date of expiration of the Anglo-Japanese conventional tariff will be subject to the conventional duties specified therein as will also goods that have been received under bond in customs warehouses.

EXPORT DEMAND LIGHT

Japanese Rail Inquiries Principal Feature—Importers Building Stocks

NEW YORK, May 12.—Export inquiry is light and importers in the United States are only moderately active at present. The Japanese market is quiet, except for current inquiries for rails, merchants evincing but little interest in the purchase of sheets and other materials sold out of stock in Japan. Chinese merchant buyers are confining their activity to small purchases of wire shorts and an occasional lot of second hand plates or tin plate wasters. Inquiries for a few tons of copper for the mints in China seldom result in business.

The inquiry from Japan for tin plate by the Nippon Oil Co., expected for several weeks, has not yet appeared. The six miles of rails inquired for by Nagoya municipality in Japan were awarded to Suzuki & Co., New York. Bids on the rails for the imperial Government Railways, 5000 tons of 60-lb. and 5000 tons of 75-lb. sections, will be opened tomorrow, May 13. Kioto municipality opens bids May 15 on 1035 pieces (about 2000 tons) of 91-lb. high T rails.

Importers Maintain Stocks Here

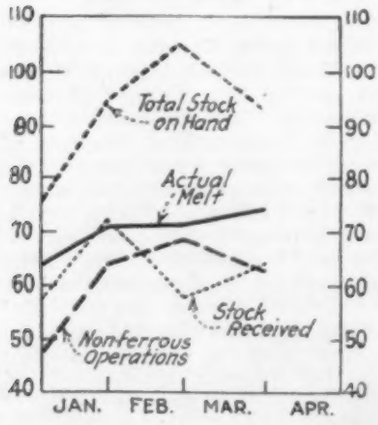
In certain grades of iron and steel, the tendency among importers is evidently to establish themselves more firmly than is permitted by merely acting as agent. The maintenance of small stocks in the United States is becoming a somewhat usual method of handling imports of certain types of material, such as pig iron, at present inactive; rails, steel pipe and cast-iron pipe. The representative of a French maker of cast-iron bell and spigot pipe expects to maintain slightly larger stocks here than in the past. An importer of rails is maintaining a sizable stock of light sections in Baltimore, and an importer and exporter in New York has recently closed with German and French mills on about 10,000 tons of oil well casing and seamless tubing for stock in the United States. This latter is the American Seamless Tube Corporation, 233 Broadway, and according to reports, is representing the German tube syndicate, having purchased about 4000 tons of California type oil well casing and seamless tubes from the German Mannesmann mill and about 6000 tons from a Mannesmann mill at Saarbrücken.

Recent reports on sales of foreign rails to American consumers have been somewhat conflicting. The first 1000 tons of a 2000-tons purchase of rails by the Detroit, Toledo & Ironton Railroad is being loaded at Antwerp and a report that this railroad purchased another 2000 tons from a different importer cannot be confirmed. A recent purchase by the Southern New York Railway Co., an electric line, totaled only a few hundred tons. While there have been rather low prices made on Belgian rails recently, importers claim that the market is stronger and it would be exceedingly difficult to repeat these prices on business today.

British mills are reported to be quite active purchasers of second-hand seamless boiler tubes of ½, ¾, ⅞ and 1⅛ in., which they pickle and redraw, exporting many of the remade tubes to the United States.

Operations of Ohio Foundries Increased Slightly in March

The Ohio State Foundrymen's Association, Cleveland, reports that March operations in foundries of its members were slightly better than February. March had a percentage of 74.9 of normal or capacity; February stood at 74.1 per cent and March, one year ago, 79 per cent. The foundries reporting had a melting capacity of 28,048 tons; against this capacity there was produced 21,035 tons.



Meltings and Stocks of Ohio Foundries in First Four Months of 1925

Stocks received have increased, March being 64 per cent; February, 57.8 per cent, and March, one year ago, was 59 per cent. Stocks received are the total of all grades of pig iron, all grades of virgin non-ferrous materials and all of the various grades of scrap, ferrous and non-ferrous. These total 18,226 tons.

Stocks on hand have declined considerably; March stood at 94 per cent, while February, which was the highest in many months, stood at 106 per cent. March, one year ago, stood at 84 per cent. Stocks on hand are a total of all grades of pig iron, all grades of virgin non-ferrous materials and all grades of scrap, ferrous as well as non-ferrous. The total of these is 26,390 tons.

Non-ferrous operations have declined somewhat, March being 63.2 per cent; February, 69.6 per cent and March, one year ago, 65.4 per cent.

Officers of Pittsburgh Steel Treaters' Organization

O. B. McMillin, metallurgist, Pittsburgh Rolls Corporation, Pittsburgh, has been elected chairman of the Pittsburgh chapter of the American Society for Steel Treating. W. J. Priestley, metallurgical engineer in charge of the Pittsburgh office of the Electrometallurgical Sales Corporation is vice-chairman; H. L. Walker, Jones & Laughlin Steel Corporation, Pittsburgh, secretary-treasurer, while the new board of directors includes Du Ray Smith, Union Spring & Mfg. Co., New Kensington, Pa., the retiring chairman of the chapter; W. I. McInerney, Pittsburgh Crucible Steel Co., Midland, Pa., Stephen L. Goodale, professor of metallurgy, University of Pittsburgh; James P. Gill, Vanadium Alloys Steel Co., Latrobe, Pa.; W. H. Phillips, R. D. Nuttall Co., Pittsburgh; C. M. Johnson, Crucible Steel Co. of America, Pittsburgh; W. J. Merten, Westinghouse Electric & Mfg. Co., East Pittsburgh, and W. B. Crowe, Carnegie Steel Co., Homestead, Pa.

Gear Makers Meet in Pittsburgh

Developments in Gear Art and Future Possibilities in Manufacturing Equipment Discussed—Progress Made in Technical Standardization

REPORTS of substantial progress in technical standardization and a number of papers dealing with technical and commercial problems of the gear industry featured the ninth annual meeting of the American Gear Manufacturers Association, held at the William Penn Hotel, Pittsburgh, May 6, 7, 8 and 9. The meeting was well attended and was marked by active participation in the full program.

E. J. Frost, president of the Frost Gear & Forge Co., Jackson, Mich., was elected president and A. F. Cooke, Fawcus Machine Co., Pittsburgh, was elected first vice-president. B. F. Waterman, Brown & Sharpe Mfg. Co., Providence, continues as second vice-president, C. F. Goedke, William Ganschow Co., Chicago, as treasurer and T. W. Owen, 2443 Prospect Avenue, Cleveland, as secretary.

Balloting for members of the executive committee resulted in the election of E. W. Miller, Fellows Gear Shaper Co., Springfield, Vt., and the re-election of W. H. Phillips of the R. D. Nuttall Co., Pittsburgh, and of E. J. Frost and C. F. Goedke.

The Central Gear & Mfg. Co., Indianapolis, with W. C. Starkey as executive representative, was elected to membership of the association. W. W. Miller, General Electric Co., Schenectady; J. P. Breuer, Barber-Colman Co., Rockford, Ill.; and A. R. Ford and F. J. Glasheen, Frost Gear & Forge Co., Jackson, Mich., were elected associate members.

E. J. FROST

President American Gear Manufacturers Association

The place and date of the fall meeting will be decided upon at an early meeting of the executive committee.

The banquet, held the evening of Friday, May 8, was addressed by Dr. Carl Wallace Petty of Pittsburgh on the subject of "Miracles of Loyalty." The music was by the KDKA Little Symphony Orchestra. J. C. McQuiston, publicity director, Westinghouse Electric & Mfg. Co., was toastmaster.

An afternoon was spent at the plant of the Westinghouse Electric & Mfg. Co., East Pittsburgh, the members being guests of the Westinghouse company at luncheon. Part of the plant, including the copper shop, the transformer aisle, the railroad aisle and the power aisle, were inspected. Of interest in the power aisle was a 7000-hp. reversing blooming mill for the Carnegie Steel Co., and in the railway aisle the large locomotives for the Virginian Railway were seen. The trip included inspection of KDKA, the parent broadcasting station of the Westinghouse company, the equipment and operation of this station being explained in detail.

Several members took the opportunity to see steel in the making at the works of the Pittsburgh Crucible Steel Co., at Midland, Pa., this trip being made Saturday afternoon, May 9.

The first general session was opened with an address by George L. Markland, Jr., Philadelphia Gear Works, Philadelphia, on "The Business Man's Political Obligations," in which he urged the active participation in politics of thinking men.

In a paper on "Development of the Gear Art," by Frank Burgess, president Boston Gear Works, Norfolk Downs, Quincy, Mass., the "generating process" of forming gear teeth was cited as a decided advance, bringing into more general use the involute form of tooth. This process also brought the development of the stub tooth with increased pressure angle which is now used in the automotive field, and was said to have made it possible to produce helical gears with more accurate tooth form and spacing, thus accomplishing the first real step in the direction of a quiet gear. There have been many improvements in the generating process in the last few years. It was said to be generally accepted that this process is fundamentally sound and that future development will be along the line of refinement only.

In discussing the development of special steels and improved methods of heat treating, it was stated that the gain in the direction of the harder materials was at the expense of quietness. One had the choice of an untreated gear of short life on the one hand or a hardened but noisy gear on the other, there being more or less distortion in the best heat treatments.

Reference was made to developments in right angle drives, the spiral bevel gears and worm gears being cited in particular. The principal asset of the worm gear was said to be quiet and smooth operation, the friction usually developed by the sliding tooth contact being stressed as its principal disadvantage. This disadvantage is being overcome by the proper selection of materials, accuracy of machining both as to spacing and tooth form, grinding and polishing of worm thread, the use of the tangential feed method of cutting the gear teeth, and the correct mounting and lubrication, including the substitution of ball and roller for plain bearings.

Refinement of inspection instruments and of gear cutting machinery were pointed to as the latest developments in the gear "art." Various recently developed testing instruments were enumerated and the improved testing equipment available was said to practically permit of visualizing the "noise" in a pair of gears and definitely place the fault at the machine or the cutter. It was thought that there is a field for some American tool manufacturer in the development of a single noise testing instrument with recording device, so that noise can be standardized as the ordinary measurements are standardized today. The final test of a gear, it was said, is the noise test, and regardless of the instruments used to check the accuracy of the gear in its manufacture, if the gear is noisy it is rejected.

The ground tooth gear was stressed as an important development of recent years. In a laboratory test made by Mr. Burgess' company an 8-pitch, 16-tooth hardened steel pinion the teeth of which were ground was arranged to run with an 8-in. pitch diameter cast iron spur gear. Both gears were 1¼ in. face and operated at a periphery speed of 600 ft. per min. This combination is said to have developed 40 hp., although according to the Lewis formula, the rating of a soft steel pinion running with a cast iron gear of this size would not be more than about 5 hp. The large amount of power transmitted by this combination was said to be because the hard smooth surface of the ground tooth pinion engaging the cast iron gear served to glaze over the teeth of the cast iron gear, giving it also a hard and smooth or burnished surface. Other tests were said to have shown that this combination works well with ratios down to about 3 to 1, but less than this ratio requires that both gears be made of hardened steel with the teeth ground. In the latter case large powers

can be transmitted. It was stated that this type of gearing is in its infancy and it will be more widely used as the method of producing such gears is improved and the cost of production reduced.

Improvements Expected in Gear Making Equipment

"What Are the Future Possibilities in Gear Manufacturing Equipment?" was the title of a paper by F. W. England, vice-president, Illinois Tool Works, Chicago, which was read by S. O. Bjornberg, consulting engineer of the same company.

In this paper, which was received with interest, the generating process of forming gear teeth was stressed as the greatest radical step taken in connection with developing gear cutting equipment, being a step that has survived and is today by far the leader. Further developments of the generating process undoubtedly will take place and to this will be added automatic loading and unloading devices. We should be able to visualize machines with magazine loaders, continuous moving generators, gear blanks automatically fed to the generators and finished gears departing from them by conveyor to be placed in the automatic loader of other machines to perform the next operation.

It is not beyond possibility that alloys may be developed that will permit of casting gears in molds and obtain equal strength to those now made by forging and cutting. These cast gears probably would be finished by grinding only, by helichoidal grinding wheels of unusually large diameters and with several gears being ground simultaneously.

The possibilities of the swaging process applied to steel has not yet been exhausted. Eventually we may have completed gears formed by the enormous pressure during sufficient time for the alloy material to flow into accurate molds.

The hot rolling and forming of gear teeth is already being done and this method may, in connection with a rapid and accurate finishing process such as grinding, develop into a very important factor.

A great many gears, such as internal gears, herringbone gears, cluster gears, etc., can be profitably made only by either the planing or shaping method. The various types of gear planers and the gear shaper have been perfected to generate these gears and also, spur, spiral and special gears to a high degree of accuracy and comply with standard systems of gear tooth curves.

Spur and spiral gears, sprockets, spline shafts and a variety of special gears are made by hobbing, which, it was said, has surpassed its brother methods in rapid production of high grade work. It was predicted that automatic generating machines equipped with hobs made of steel of increased strength and hardness, "will soon appear at the horizon of thought to find someone to pilot them safely to shore." Present hobs are cylindrical cutters of comparatively quick peripheral curvature and they will, therefore, not form straight gear teeth without traversing the face of the gear. Hobs of larger diameter have slower curvature and can be fed faster without affecting the finish, but economical construction of a hob of sufficient diameter to cut a gear within practical limits, without the traverse feeding, is beyond comprehension. A suggestion for a hobber, it was stated, may be derived from the caterpillar tractor. Such a machine would have an endless chain for a cutter, a chain provided with hob teeth, against which the work would be fed radially.

With further reference to steel for making cutting tools, it was stated that metallurgy has opened up a bewildering new science in which those who will lay down for themselves a program of exploring will reveal possibilities unsuspected before.

Through the cooperation of the maker of hobbing machines and the maker of hobs the art of hobbing and the building of hobbing equipment was said to have made great progress in the last five years. The hobbing machine has been greatly simplified, now using comparatively few gears in the interconnection between work and cutter. The simplified manufacturing hobber is built on scientific principle and with knowledge of the action of cutting tools in the proportioning of its parts. The means for timing the few rotating parts has also been refined to a point where it requires delicate instruments to detect any variation at all.

In discussing the future of grinding gears it was said that gear grinding has not yet come into its own. "Is it not waiting for the grinding machine that works on the continuous molding generating principle, the machine that will be to grinding what the hobber is to milling and planing?" Mr. England asked. "We believe the time is not far away when such a machine will be developed and will revolutionize the method of making hardened gears. All gears will then be ground for the same reason that it is less expensive today to produce accurate cylindrical work on a grinder than it is on a lathe, even though the material be soft.

"It has often been said that a hob with an infinite number of teeth would fulfill the ideal requirement for generating perfect gear teeth. The abrasive hob complies with this theory, as the number of cutting teeth in a grinding wheel approaches infinity.

"Present day gear cutting equipment for finishing purposes may, therefore, largely be replaced by grinding in the near future, but there will still be a place for planing, shaping and hobbing."

Gear Specialist Aided Automotive Development

The contribution of the gear specialist to the development of the automotive industry and the possibilities for continued effective service in that field were outlined in a paper by E. B. Baltzly, assistant general manager, Warner Gear Co., Muncie, Ind., under the title of "What Has the Automotive Gear Manufacturer Added?"

Mr. Baltzly began with the early days when the automobile maker, having developed the power, was concerned with its efficient application to the rear wheels. The vehicle maker was too much occupied, he said, with other matters to work out the many problems of gearing. He needed the services of the man who could devote his entire time to this one essential of the new machine.

When the gear man began his work there was little of what may now be seen in a modern gear plant. There were no commercial alloys, the early transmissions being made from Bessemer screw stock. The metallurgist in the works of the specialist, it was stated, first saw the first heat of alloy steel for automotive gears. He developed better practices in his own shop and started development outside for better basic materials. The industry, it was said, must pay homage to the gear man for his pioneering work in the heat-treating of automotive steels. In turn the steel man did his bit, and continued to develop his steels, until today we have a reliable product, even though the possibilities for further betterment are far from exhausted. Similarly, cooperation with makers of drop forgings, foundrymen, and makers of bronzes, bearing metals and other products resulted in the development of basic materials to high standards. The gear specialist, in having to deal with a large variety of machining operations, was said also to have contributed to the development of various highly accurate and extremely fast machine tools.

In speaking of conditions today, it was said that the percentage of profit in the business has been exceedingly small and due to its rapid development, this has had to be expended for new and better equipment, resulting in very low prices for a product of a highly technical and specialized type.

We have now come to a time when changes of a commercial nature are taking place in the entire automotive industry, said Mr. Baltzly. Most vehicle manufacturers are equipped to produce more cars than they can sell. Each has striven to hold or to increase his business at the expense of others through lowered prices and various stimulants at his command, saving for himself a dollar or a dime of cost wherever possible. The specialized gear industry is vitally concerned with the entire aspect. It could supply better gears and units and perhaps, at less actual cost, to some of the manufacturers who are now making their own. But at this time efforts can be made more helpful by seeking closer cooperation with its own trade.

Considerable pains should be taken by the gear spe-

cialist, it was said, to make his customer realize all that close cooperation might be worth to him. A better understanding between seller and customer could eliminate unnecessary work on gears that have no relation to their service, reduce the cost to the customer and more than pay for a better mounting or the stiffening of some minor part. The gear purveyor will then stand in a better position as to the desirability of his product, costing him less to make and with less, if any, loss to charge to his costs on account of rejections. The gear maker should insist upon knowing how his product is to be mounted and used.

The installation by automobile manufacturers of special equipment to produce their own gears was discussed at length. Over-capacity was said to exist in the plants of car manufacturer as well as with the gear maker, and it is therefore unsound economically to add to it. If complete and actual costs of the gears as made in the car manufacturer's own plant, including the increased operation overhead, together with the cost and depreciation of the investments, were taken, there are many good reasons for stating that they would reflect a higher figure than the purchased product. The automobile manufacturer would also see his costs jump when changes in design are made. The gear maker, it was stated, with his diversified equipment, is prepared to make these changes at less cost to the car manufacturer.

In conclusion, Mr. Baltzly said: The gear maker and customer have a broad common ground on which to stand together. The wide experience, ability and equipment of the gear maker is available to the automotive manufacturer, offering advantages which have not, of late, been fully recognized. The manufacturer can utilize economically more of the service of the gear maker because the latter has the best equipment, with the knowledge to meet and the willingness to provide for any situation. He, too, can best continue to carry on the necessary development and to set the required standards of quality. Modified or new and better ideas in gearing for the future are only in keeping with his accomplishments of the past.

Gear Industry Has Future on Pacific Coast

"The Gear Industry on the Pacific Coast," a paper by Frank B. Drake, president Johnson Gear Co., Berkeley, Cal., was well received. Mr. Drake discussed the past, present and future of the industry, enlarging his talk to include the general industrial development of the Pacific Coast.

The extent of the Pacific Coast territory was outlined and the basic fundamentals which are essential to the development of industry in general and the gear industry in particular were treated of under the heads of markets, transportation facilities, raw materials, and labor.

It was stated that industrial development on the Pacific Coast has been handicapped and restricted to a certain extent by the lack of steel mills. Steel castings were said to have been produced in San Francisco in an open-hearth furnace in 1885. After this plant was abandoned, other companies were organized for the making of steel castings by the same process and, since the early part of 1900, such castings have been made continuously. The steel was produced from scrap, practically no pig iron being used because the cost of transporting pig iron from the Eastern blast furnaces was so great that it was economically impossible to produce steel on a competitive basis with Eastern producers.

"Up to the time of the Great War," said Mr. Drake, "there were large supplies of scrap metal available from the accumulation from mines, plants and railroads, which scrap could be purchased around $9 per gross ton. Because of demand created by unusual expansion during the war, the surplus of scrap material was greatly reduced so that those mills which were building up a diversified production to supply the needs of an increasing population wisely determined that the only way this expansion could be protected was to secure a constant source of supply of raw material, which, of course, is pig iron.

Assured a Constant Supply of Pig Iron

"The Columbia Steel Corporation, San Francisco, after spending many years making investigations of the coal and iron deposits in the West, finally located in Utah a large deposit of high-grade iron ore and bituminous coal suitable for the production of metallurgical coke. This property was purchased and the construction of blast furnaces and coke ovens started about 50 miles out of Salt Lake City, Utah, at Provo. This blast furnace, which has a capacity of 350 tons per 24 hr., has been in operation since May 1, 1924, producing basic and foundry iron." This development in Utah by the Columbia Steel Corporation has resulted in expanding of its plants at Pittsburgh and Torrance, Cal., and Portland, Ore., where open-hearth and electric furnaces, steel foundries and rolling mills are being operated. The Pacific Coast and Mountain States were said to be now assured of a constant supply of pig iron at reasonable prices.

The result of this first blast furnace starting in the West was stated to be one of the most important events of a forward nature since the building of the trancontinental railroad. With the rapid growth of population westward, it was thought that the steel industry will grow proportionately in the next 10 to 20 years, bringing with it those major industries which require steel for their raw material.

The coal supply, petroleum and hydroelectric power of the Pacific Coast were discussed, as was also the labor supply. In conclusion, Mr. Drake said that the West Coast is making progress in manufacturing; that the population is moving westward, providing manpower to man the industries; that development is being rapidly made in the installation of rolling mills; that increased production of petroleum coupled with intensive hydro-electro service are solving the fuel and energy problems; and that the operation of the Panama Canal and transpacific ocean service meets transportation needs. It was thought practical to assume that the next five years should see marked progress in manufacturing developments in which the gear makers would participate and help develop.

Other Technical Papers

"Photoelasticity and Its Application to Gear Wheels" was treated of in an address by Dr. A. L. Kimball, Jr., research laboratory, General Electric Co., Schenectady. Lantern slides were used to illustrate the address. The photoelastic method is a means by which the stress in loaded structures can be determined directly by polarized light measurements on transparent models. Polarized light is produced in the usual way, and is passed through the transparent model which alters the light in proportion to the stress at each point. When the transmitted light is passed through a suitable optical device, it may be projected upon a screen or upon a photographic plate, where suitable analysis of the colored image will give the exact distribution in the transparent model. When the stress in the model is determined the results are translated into steel.

Another technical paper was that of Charles H. Logue, consulting engineer, Syracuse, N. Y., on "Limiting Spur Gear Design." The object of this paper was to show limiting values which may be safely employed with different angles of obliquity for various spur gear reductions.

Progress Reported in Association's Standardization Work

THERE was considerable evidence that the technical standardization work of the association is making further progress. The opening day of the convention, May 6, was devoted to meetings of the various subcommittees of the general standardization committee. These meetings, which were well attended, not only af-

forded an opportunity for the discussion of the progress reports to be presented at the general sessions, but also permitted discussion between committees whose work was in some items related. The committee meetings were preceded by an address on "Various Viewpoints of Standardization" by A. H. Timmerman, Wagner Electric Mfg. Co., St. Louis, and president of the Electric Power Club. B. F. Waterman, Brown & Sharpe Mfg. Co., Providence, chairman of the association's general standardization committee, presided at this and other sessions in which reports of the technical committees were presented.

In the report of the association's representatives of the A. S. M. E. research committee on gears, it was brought out that the research committee met early in April at the Massachusetts Institute of Technology to observe the machine developed by Dr. Wilfred Lewis for testing the result of speed and load upon gear teeth. It is expected that from these tests and the simultaneous testing of the stresses in gear teeth by the photoelastic method, both being conducted at the same institution, that a considerable addition to the knowledge of gear teeth will be obtained within the next six months. It was suggested in the report, which was submitted by E. W. Miller, Fellows Gear Shaper Co., Springfield, Vt., that in view of this work Boston should be considered as the logical place for holding the association's fall meeting.

The differential gear committee's proposed recommended practice for two sizes of differential gears was accepted, the same practice having been previously approved by the general standards committee of the Society of Automotive Engineers. The recommendations will, it is thought, simplify the problems of the differential gear manufacturers, who are obliged to produce a large number of designs differing only in unimportant details. S. O. White, Warner Gear Co., Muncie, Ind., is chairman of this committee.

Progress was reported by A. P. Emmert, Warner Gear Co., Muncie, Ind., chairman of the transmission committee. The dimensions and limits for the machining of transmission cases, flanges and flywheel housings reported on at the last meeting of the association were resubmitted, the automobile manufacturer and transmission builder being said to be in favor of that practice. This committee has had difficulty with its work on nomenclature, it being found that several names were used for one part.

Basic Rack Proposed

Important progress was shown by the report of the tooth form committee, which was presented by H. J. Eberhardt, Newark Gear Cutting Machine Co., Newark, N. J. The committee has for several years been considering a standard for 14½-deg. interchangeable involute gear system. Such a standard was submitted to the American Engineering Standards Committee's sectional committee on gears, in 1922, by Earle Buckingham, engineer of standards, Pratt & Whitney Co., Hartford.

The basic rack has been tested by making tools according to its specifications, from which gears were developed which ran quite well with cutters purchased in the open market. The proposed basic rack has been discussed by the committee, and is being made public in order to invite wider criticism.

The mathematical definition of this basic rack, which is a combination of the involute and cycloidal curve, is shown in Fig. 1. In this purely mathematical form, it is more difficult to use or test out than in the form shown in Fig. 2, which is a practical approximation to the rack shown in Fig. 1 and is defined in values that can be put readily into template or cutter form. It is not claimed that this basic rack will generate gears known as Brown & Sharpe gears, but it is believed that gears generated with this rack will run very well with the Brown & Sharpe gears and will correctly interchange with each other. The rack is believed to be a true basis for an interchangeable system, including from a 12-tooth pinion to a rack.

The tooth form committee is collecting data on hobs as made in this country for generating gears with what is known as ease-off on the approach, and it is hoped to present a standard for hobs, so that regardless of the maker, if they are made standard, gears generated from them will be alike. The committee is especially interested in the ease-off for the full-depth teeth and sub-teeth; fillet radius of top and bottom of hob teeth; the basic rack for 14½-deg. and 20-deg. full depth involute teeth; and the amount to taper generating hobs for spur and helical gears.

Revised recommended practice on roller chains, sprockets and sprocket cutters, submitted by the committee on transmission chains and sprockets, of which G. M. Bartlett, Diamond Chain & Mfg. Co., Indianapolis, is chairman, was accepted. The material is contained in 17 data sheets, and arranged for convenient reference. Changes include the separation of recommended practice relating to chains from that relating to sprockets and sprocket cutters and the revision of measuring loads and test loads. The data sheets cover roller chain nomenclature, standard roller transmission chains, standard sprockets for roller chains, standard sprocket tooth form for roller chains, standard "space cutter" design for roller chain sprockets; "straddle cutter" design for roller chain sprockets; sprocket tooth form for block chains or "twin roller" chains; and cutter design for block chain sprockets.

Gear Shaper Cutter Inspection Practice

The proposed recommended practice for the inspection of gear shaper cutters, submitted by the inspection committee, was accepted. The items covered include the inspection for hardness, bore, flatness of back surface, parallelism of sides, angle and concentricity of front cutting surface, clearance angle, concentricity and tooth spacing; tooth thickness and tooth form. A fixture for use in testing some of the elements is illustrated. The inspection committee, which is headed by F. G. Eppley, Albaugh-Dover Mfg. Co., Chicago, also submitted data for the inspection of gear cutters (disk). These data were discussed in detail, and will be resubmitted at the next meeting of the association.

The progress report of the spur gear committee, of which J. L. Williamson, Fellows Gear Shaper Co., is chairman, was presented by members of the committee, to each of whom definite items of work had been assigned. Item 2 relating to the preparation of a standard spur gear for industrial use was reported on by Douglas T. Hamilton, Fellows Gear Shaper Co. An attempt has been made to lay out a plan which could be used to determine the type of gear, i.e., whether it should be solid, ribbed or of the spoked variety. If the following premise is correct, he said, "that the initial data are hp.; r.p.m.; and ratio, then we can follow a definite procedure with the certainty that we are giving the principal requirements first consideration. Knowing the hp. to be delivered and the speed at which it is to be delivered, the bore diameter can be determined by the following formula: Bore $= \sqrt[3]{\frac{\text{hp.} \times 80}{\text{R. P. M.}}}$

In this formula 80 is derived from the regular torsion formula for shafts, in which a value of approximately 4000 lb. per sq. in. is used as the safe stress for all conditions and materials. Up to this point there appears to have been no considerable difficulty in connection with the design of industrial gears. But from this point on, it would appear that practical experience in the design of industrial gearing is essential. It is the hope of the committee that some method will be derived for taking care of the various conditions which must be met, such as tooth load, velocity, material, etc.

Item 3, relating to the development of general hp. formulæ for use in making table of horsepower was reported on by Mr. Williamson.

Items 4 and 6 of the committee's program was reported on by P. L. Tenney, Muncie Products Co., Muncie, Ind., who said that a series of dynamometer tests and design checks had been under way in his company's plant, 130 dynamometer tests ranging from 6 to 100 hr. each having been run, covering most of the commercial gear steels and broadly three tooth forms. The trend of the activity was to develop the characteristics of present steels and current designs. Oil hardened and pack hardened steels in the conventional stub tooth de-

sign was first used. The predominating evidence was that the wear or life values and not the breakage or stress values controlled all calculations.

Next, the most favorable combinations of material and heat treatments were applied to full pitch gears and the tests re-run with all other conditions remaining as in prior tests so as to assure proper comparisons of the tooth form values. The results were said to indicate an increase in life of from 300 to 400 per cent. The second series of tests still indicated that the wear values controlled design even on the full depth teeth.

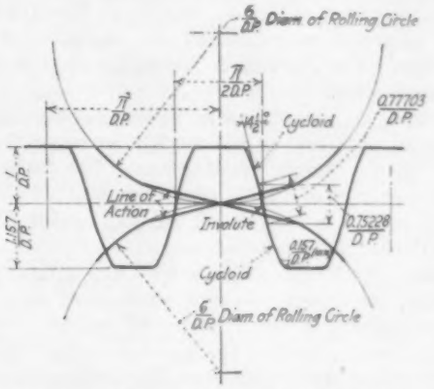
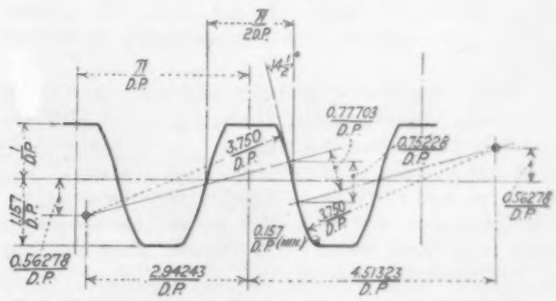


Fig. 1 (upper) Shows Mathematical Definition of the Basic Rack for 14½ Deg. Standard. A practical approximation to this rack, which is defined in values which can readily be put into template form, is shown in Fig. 2 (lower)



For further data in this direction modified addenda gears were calculated and tested, giving indications, it was said, that the sq. in. per min. of active tooth surface was the major factor in gear life design. For the purpose of the test, it was considered that this should be developed to the fullest active value of one tooth, that the pitch should be decreased and the number of teeth for the greatest overlap value or number of teeth in action, to a point where the known strength factors for a given material become equal to the wear factor on the preferred design.

The dynamometer tests were run using the intermediate gears only under the full rated load and speed of the engine. Some checkings were made under varied loading and under variations of heat treatment and hardness, these readily indicating the advisability of adhering to present accepted metallurgical practice in all but one feature. It developed that the wear resistant value of a tooth surface in some materials could be increased as much as 300 per cent by a treatment sacrificing up to 10 per cent of the accepted standard physical test values. That is, the ideally treated steel judged by the conventional physical tests and structure does not make the best gear and by a slight change in the treatment and structure a great increase in gear life may be produced at a sacrifice of only a small portion of the over-ample safety factor. Tests are now under way in the metallurgical laboratory to get better data on this feature.

It is readily evident, said Mr. Tenney, that we are still digging down toward bedrock, figuratively speaking, and are not as yet in a position to present any conclusions. We have, however, put several of the findings into practice on our product and they are proving very satisfactory in field work. The further calculations on these gears are being made and the dynamometer is being employed in an endeavor to find the true basis for some formulæ which can be presented to make calculation of automotive gearing a much more definite process than it has been in the past.

J. C. O'Brien, Pittsburgh Gear & Machine Co., Pittsburgh, submitted a report for the worm gear committee, this report forming part of a group of tables giving the dimensions, bearing loads, etc., of a system of worm gears for industrial purposes, and which it is intended to adopt as recommended practice.

Attached to report were tables covering wheel and worm dimensions, the former including pitch diameter, throat diameter, outside diameter and radius at corners, for worm wheels of 1 in., linear pitch having from 12 to 150 teeth. All dimensions of single, double, triple and quadruple worms required for the manufacture of a standard product, excepting length of face, for which a formula was given. The report also includes diagrams showing direction of rotation and thrust, with worms and wheels of different hand. Formulas and tables are given for determining the bearing loads, both radial and thrust, the circumferential pressure angle, axial pressure angle, separating force, normal tooth pressure or pressure per inch of face and hp per revolution.

The bevel and spiral bevel gear committee has been working on a straight tooth bevel gear system and expects to present this material at the next meeting. It is also assisting the nomenclature committee in the nomenclature portion of its program.

Nomenclature Committee Working on Symbols

The association's nomenclature is working on names, definitions and a definite system of symbols, the latter presenting the greatest difficulty. The committee is endeavoring to arrive at definitions that are technically correct, symbols that can be used and adequate diagrams of the various elements.

The library committee, of which E. J. Noble, Horsburgh & Scott Co., Cleveland, is chairman, distributed chordal thickness sheets, tables of sines, cosines, tangents and cotangents, and expects to have sheets on worm gear and non-metallic gear data, and other handbook material ready for the next meeting. Requests have been made from outside sources for copies of the recommended standards adopted by the association and the expense of their extra printing will be met by contributions from member companies. Several contributions for this purpose were made at the meeting.

A formula for use in determining the horse power of non-metallic spur gears was presented by F. G. Sorenson, Cincinnati Gear Co., Cincinnati, chairman of the non-metallic gear committee. The report was referred back to the committee for further details relating to the derivation of the formula.

The metallurgical committee, which is headed by C. B. Hamilton, Jr., Hamilton Gear & Machine Co., Toronto, reported general progress, but made no definite recommendations.

The herringbone gear committee, under the chairmanship of A. F. Cooke, Fawcus Machine Co., Pittsburgh, has formulated replies to criticisms of recommended standards for herringbone gears cut with single thread hobs set at angle to axis of gear, previously submitted, and will present them at the next meeting.

Publicity Report

The report of the publicity committee was presented by J. C. McQuiston, publicity director, Westinghouse Electric & Mfg. Co., East Pittsburgh, chairman. In the budget for the coming year an appropriation of $500 will be set aside for the use of this committee in developing pamphlets for general distribution, this being in the nature of cooperative advertising. These pamphlets will display the advantages of gears as the product of the specialist in contrast with "homemade" gears. It was suggested that these pamphlets be sold to member companies, who will distribute them in their particular localities. It is felt that there is considerable idle gear making capacity which could be employed to the mutual advantage of the gear user and gear specialist.

Iron and Steel Markets

DECLINE IN PIG IRON

Price Now Near the Lowest in Three Years

Steel Works Still Curtailing, with New Buying Light

In evening up for the overproduction of the first quarter of the year, the iron and steel industry has taken further steps toward curtailment in the past week. While the advance of spring has brought increased consumption of steel in some directions, as for automobiles and for building, the scale of new buying and of specifying on contracts has not been sufficient to support the April rate of output.

As against 79 per cent of ingot capacity operating on the average last month, the rate is now slightly under 70 per cent. In the Pittsburgh district five blast furnaces have gone out in the week, and a number in other districts are scheduled to follow in the next ten days.

The price situation in brief is that pig iron has declined again under larger sales; finished steel has continued unsettled; scrap has turned upward in one or two markets, and coke has yielded because output could not be quickly adjusted to the blast furnace suspensions.

Chicago and Pittsburgh district mills have continued their effort to get $2 a ton more on small-lot business in plates, shapes and bars than is paid by large buyers, but in Eastern markets the 2c., Pittsburgh, price on bars is general, while eastern Pennsylvania mills have gone to 1.90c. on plates.

The feature of the week is that in every pig iron selling center apart from the East, the prices fell about $1 a ton. All markets evidently took their cue from the sharp decline of the week previous in New England, where Buffalo and eastern Pennsylvania furnaces were in competition. In several districts some large buyers have bought in part for the third quarter, recognizing that prices were approaching low point. At Chicago the reduction has not started a buying movement yet for third quarter iron, though one is thought to be not far off.

Foundry operations in and around Chicago are estimated to be about 10 per cent less than those of six weeks ago.

In Cincinnati territory competition between southern Ohio and Lake Erie furnaces brought out a price of $19.50 on Ironton foundry pig iron. Tennessee iron also has sold in southern Ohio on the basis of $18, Birmingham.

Fair sized purchases of heavy melting steel in the Pittsburgh district have stiffened the market, the supply appearing less plentiful. There was an advance at Cleveland also of $1 a ton. In eastern Pennsylvania, however, the present rate of steel works operation is less favorable to any sustained advance in scrap.

The much-announced order for 5500 cars for the Chicago, Milwaukee & St. Paul has been distributed. The same road will close this week for 1000 cars more, and will also contract for repairs for 1000 stock cars. The Norfolk & Western has placed 1935 gondola bodies.

Structural awards were above 34,000 tons for the week, or close to the weekly average for this year. A St. Louis theater calls for 6000 tons. Fresh inquiries of 15,000 tons include 4500 tons for a section of the New York subway under Central Park West.

Sheets and cold rolled strips are alike in that too many producers are seeking to keep up a good-sized operation at the expense of prices.

Pipe mills, while having no large backlogs, are operating at 60 per cent for independents and 75 to 80 per cent for the Steel Corporation, the latter having some good sized line pipe contracts. The Houston Oil Co.'s 200-mile line will engage capacity in the larger sizes for several months.

Western implement and tractor plants expect to maintain satisfactory, if not full, operations through the summer, which is ordinarily their dull season.

Price concessions on bolts and nuts are more numerous. Specifications from implement and automobile plants hold up well.

Another drop in THE IRON AGE pig iron composite price brings it to $19.71, the lowest since last November and only 50c. above the lowest in more than three years. The decline since the end of February has been $2.79.

Finished steel is at 2.460c. per lb., THE IRON AGE composite price showing no change this week. It is $2 a ton below the January level and $3.58 below that of one year ago.

Pittsburgh

Adjustment of Production to Demand Continues

PITTSBURGH, May 12.—Continued adjustment of steel production to demand has brought a still lower rate of operations in this and nearby districts in the past week, and ingot output now is at about 65 per cent of capacity. The Steel Corporation subsidiaries are averaging about 70 per cent, while the general average of independents is about 60 per cent. The Carnegie Steel Co. has taken off two more blast furnaces and the Jones & Laughlin Steel Co. one, while one merchant blast furnace has been blown out and another one banked. These changes leave the Carnegie Steel Co. with 33 of its 58 stacks in production, two of which are on ferromanganese and the Jones & Laughlin Steel Corporation with 8 out of 12 stacks active.

Of the 135 blast furnaces in this general district, 78 now are in production, that total comparing with 106 at the beginning of March. These developments not only suggest, but actually reflect that business has not improved, but it is also a notable fact that the industry at large regards the recession in plant activ-

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	May 12, 1925	May 5, 1925	Apr. 14, 1925	May 13, 1924
No. 2X, Philadelphia‡	$21.76	$21.76	$23.26	$22.76
No. 2, Valley furnace†	*19.00*	20.00	20.00	21.00
No. 2, Southern, Cin'ti†	24.05	24.05	24.05	26.05
No. 2, Birmingham, Ala.†	20.00	20.00	20.00	22.00
No. 2 foundry, Chicago*	*21.00*	22.00	23.00	23.00
Basic, del'd, eastern Pa.	21.00	21.00	22.75	21.00
Basic, Valley furnace	*18.50*	20.00	20.00	21.00
Valley Bessemer, del. P'gh	*21.76*	23.76	22.76	23.76
Malleable, Chicago*	*21.00*	22.00	23.00	23.00
Malleable, Valley	*19.00*	20.00	20.50	21.50
Gray forge, Pittsburgh	*20.26*	21.26	21.26	22.26
L. S. charcoal, Chicago	29.04	29.04	29.04	29.15
Ferromanganese, furnace	115.00	115.00	115.00	107.50

Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Bess. billets, Pittsburgh	35.50	35.50	35.50	38.00
O.-h. billets, Pittsburgh	35.50	35.50	35.50	38.00
O.-h. sheet bars, P'gh	37.00	37.00	37.00	40.00
Forging billets, base, P'gh	40.50	40.50	40.50	43.00
O.-h. billets, Phila.	*40.67*	41.17	41.67	43.17
Wire rods, Pittsburgh	46.00	46.00	48.00	48.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	2.00	2.00	2.00	2.25
Light rails at mill	1.75	1.75	1.80	2.00

Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.22	2.28	2.47
Iron bars, Chicago	2.10	2.10	2.10	2.30
Steel bars, Pittsburgh	2.00	2.00	2.10	2.25
Steel bars, Chicago	2.10	2.10	2.20	2.35
Steel bars, New York	2.34	2.34	2.44	2.59
Tank plates, Pittsburgh	2.00	2.00	2.00	2.20
Tank plates, Chicago	2.20	2.20	2.30	2.45
Tank plates, New York	2.24	2.24	2.34	2.49
Beams, Pittsburgh	2.00	2.00	2.10	2.25
Beams, Chicago	2.20	2.20	2.30	2.45
Beams, New York	2.34	2.34	2.34	2.59
Steel hoops, Pittsburgh	2.40	2.40	2.40	2.75

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	May 12, 1925	May 5, 1925	Apr. 14, 1925	May 13, 1924
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.20	3.20	3.40	3.60
Sheets, black, No. 28, Chicago dist. mill	3.40	3.40	3.60	...
Sheets, galv., No. 28, P'gh	4.30	4.30	4.50	4.80
Sheets, galv., No. 28, Chicago dist. mill	4.50	4.50	4.70	...
Sheets, blue, 9 & 10, P'gh	2.40	2.40	2.60	2.80
Sheets, blue, 9 & 10, Chicago dist. mill	2.50	2.50	2.70	...
Wire nails, Pittsburgh	2.75	2.75	2.85	2.90
Wire nails, Chicago dist. mill	2.85	2.85	2.95	...
Plain wire, Pittsburgh	2.50	2.50	2.60	2.65
Plain wire, Chicago dist. mill	2.60	2.60	2.70	...
Barbed wire, galv., P'gh	3.45	3.45	3.55	3.70
Barbed wire, galv., Chicago dist. mill	3.55	3.55	3.65	...
Tin Plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50

Old Material, Per Gross Ton:				
Carwheels, Chicago	$16.00	$16.00	$16.00	$16.00
Carwheels, Philadelphia	17.00	17.00	18.00	17.00
Heavy steel scrap, P'gh	17.00	16.00	17.00	15.50
Heavy steel scrap, Phila.	14.50	14.50	14.50	14.50
Heavy steel scrap, Ch'go	14.75	14.75	14.75	13.75
No. 1 cast, Pittsburgh	17.50	17.50	18.00	18.00
No. 1 cast, Philadelphia	17.00	17.00	17.50	17.00
No. 1 cast, Ch'go (net ton)	17.00	17.00	17.50	17.50
No. 1 RR. wrot, Phila.	17.50	17.50	18.00	16.50
No. 1 RR. wrot. Ch'go (net)	13.25	13.00	13.00	12.00

Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$3.00	$3.00	$3.00	$3.25
Foundry coke, prompt	4.00	4.00	4.00	4.75

Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	*13.62½*	13.75	13.75	13.37½
Electrolytic copper, refinery	13.37½	13.37½	13.37½	13.00
Zinc, St. Louis	6.97½	6.92½	7.12½	5.87½
Zinc, New York	7.32½	7.27½	7.47½	6.22½
Lead, St. Louis	7.02½	7.45	7.70	7.10
Lead, New York	7.07½	7.75	8.05	7.35
Tin (Straits), New York	*54.50*	54.62½	50.00	46.00
Antimony (Asiatic), N. Y.	17.50	13.00	13.50	8.50

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

THE IRON AGE Composite Prices

May 12, 1925, Finished Steel, 2.460c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

May 5, 1925,	2.460c.
April 14, 1925,	2.531c.
May 13, 1924,	2.629c.
10-year pre-war average,	1.689c.

May 12, 1925, Pig Iron, $19.71 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

May 5, 1925,	$20.63
April 14, 1925,	21.04
May 13, 1924,	21.79
10-year pre-war average,	15.72

	High			Low		
	1923	1924	1925	1925	1924	1923
Finished Steel	2.824c., April 24	2.789c., Jan. 15	2.560c., Jan. 6	2.460c., May 5	2.460c., Oct. 14	2.446c., Jan. 2
Pig Iron	$30.86, March 20	$22.88, Feb. 26	$22.50, Jan. 13	$19.71, May 12	$19.21, Nov. 3	$20.77, Nov. 20

ities as merely a necessary step in the correction of the excessive production of the first quarter of the year and has not lost faith in the idea that the year as a whole will average well.

It is believed that consumers' inventories are not now especially burdensome, that consumption is as heavy and probably heavier than it was at the beginning of the year and it is taken as a favorable condition that production of steel, with the possible exception of sheets, now is pretty well down to the basis of actual requirements.

The recent advance in prices of ordinary tonnages of plates, shapes and bars is well observed, and if not much tonnage is moving at 2.10c., base, that quotation at least is helpful in sustaining the market at 2c. for large lots. Weakness still prevails in the sheet market and cold rolled strips have eased down to 3.75c., base, on worth-while tonnages, as against 4c. which makers long strove to maintain. In both these lines it is a case of there being too many producers seeking a share of passing business.

Pipe and tin plate still stand out as the brightest spots in the market, both from a standpoint of business and price stability. The leading pipe producer recently started production on a 200-mile line pipe for the Houston Oil Co., which will engage its capacity in the larger sizes of such pipe for several months.

Pig iron producers have endeavored to find a trading level and in doing so have let prices down $1 per ton in foundry, Bessemer and malleable grades, while to secure business in basic iron it has been necessary to go $1.50 a ton below the recent nominal quotation.

Only one good sized sale has as yet resulted from the price reduction, buyers taking the cut to portend still further concessions.

The scrap market, on the other hand, has stiffened rather sharply on heavy melting steel, largely as a result of purchases by a Pittsburgh district steel maker. The coke situation suffers from the fact that production cannot be curtailed as rapidly as the demand is checked by blast furnace suspensions.

Pig Iron.—Prices have receded sharply on all grades in the past week. The decline which is $1 a ton in Bessemer, foundry and malleable grades, and $1.50 a ton in basic iron, represents an effort on the part of producers to interest melters. There was one good sized sale of basic iron at $18.50, Valley furnace, but in other directions the effect of the reduced prices appears to have encouraged melters to hold back in the expectation of still further concessions. Small sales of foundry iron have been somewhat more numerous than they were recently, but they have been generally at $19, Valley furnace, for No. 2, as against $20 recently quoted. The new price of $20 on Bessemer iron has found a basis only in a few small sales. Valley producers have attempted to secure business in Central Ohio, but have found that Lake furnaces, with the advantage of lower freights, have been able to undersell them, foundry iron, for instance, having been sold from Lake furnaces at a price equivalent to about $18.75, Valley furnace for No. 2 grade. The stack of the Sharpsville Furnace Co. has been banked and the Claire furnace of the Reliance Coke & Furnace Co., Sharpsville, Pa., has been blown out. The Carnegie Steel Co. has taken off one Isabella and one Mingo furnace, and the Jones & Laughlin Steel Corporation has taken off one of its Aliquippa furnaces.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$18.50
Bessemer	20.00
Gray forge	18.50
No. 2 foundry	19.00
No. 3 foundry	18.50
Malleable	19.00
Low phosphorus copper free	28.50

Ferroalloys.—There are no new features. Demand for ferromanganese is very limited, but as the ore and exchange markets are strong, there is no disposition just now for producers to seek to stimulate business by cutting prices. There is a belief, however, that when consumers are interested they will not be called upon to pay the present price. Deliveries on contracts constitute all of the business in ferrosilicon and spiegeleisen. Prices are given on page 1457.

Semi-Finished Steel.—There is almost no new buying in billets, slabs and sheet bars and specifications on contracts are well below expected quotas. It is well established that nonintegrated sheet makers began the quarter with fairly large stocks, and sales of finished sheets are being made at such low prices that apparently liquidation of these stocks is in progress. Certainly, the light specifications on sheet bar contracts and the low prices on finished sheets are not otherwise easily explained. Strip makers, who constitute an important outlet for commercial rolling billets, also appear to be using up stocks rather than buying. Quotations are unchanged, but they are untested and nominal. Here and there billet prices are being shaded to the extent of special cash discounts. There is no activity in wire rods or in skelp, and only a fair demand for forging billets. Prices are given on page 1457.

Wire Products.—Business has fallen to low ebb because of a rather general tendency on the part of jobbers and manufacturing consumers to use up present stocks before making fresh purchases. In some cases, specifications now amount to less than 40 per cent of capacity and shipments to only about 50 per cent and few mills now have backlogs of a size to brag about. It is believed, however, that consumption is good over most of the country and that exhaustion of stocks in second hands will be rapid enough to bring on a new buying movement before the summer is far along. Mill operations range from 50 to 60 per cent, or in keeping with present demands. Prices are holding well in the Atlantic and Middle Atlantic States, but show considerable irregularity in the Middle West and in the South. Prices are given on page 1456.

Sheets.—There is not much complaint by producers as to the volume of business, but there is about the prices that have to be made to keep buyers interested sufficiently to insure a reasonably high rate of mill operation. So far as Pittsburgh district mills are concerned, the market is regarded as 3.30c. to 3.40c., base, for black, 4.40c. to 4.50c., base, for galvanized, and 2.40c. to 2.50c., base, for blue annealed, with the American Sheet & Tin Plate Co. still having quotations and business on contract 10c. per 100 lb. above these maxima, but which do not mean much so far as new business is concerned, as this company is meeting competition to the extent of the prices given. Lower prices than noted on black sheets are believed here to refer to some sales of automobile body sheet seconds to oil companies for oil barrels and that low-priced galvanized sheets have resulted from the liquidation of accumulation of black sheets, which were galvanized to effect the sales. Such business is regarded as conversion of inventories and not entirely representative of the market on fresh production. It is not denied that such transactions have supplied certain demands, and have contributed in making worse a situation made bad by overproduction. The market is weak and buyers are so conducting purchases as to keep the situation favorable to themselves. Mill operations hold up toward 70 per cent of capacity, but that rate is dependent upon active sales effort and daily orders, as there is no sign of forward buying. Prices are given on page 1456.

Tin Plate.—This product is something apart from the general steel industry, as regard to demand, mill operations and price stability. The price has not changed for more than a year. The industry is engaged at 85 per cent or more of capacity and the specifications against contracts are coming in without urging. The first government crop report on packing vegetables is on tomatoes and it shows an increased acreage of 24 per cent over last year for the country. The acreage planted last year was heavy despite the weather, but the harvest was small because of bad weather conditions. No tendency yet is noted to accept the favorable weather conditions to date as indicating a heavy pack of fruits and vegetables, but all expectations are in that direction and the tin plate industry still looks for a heavy consumption of tin plate. Specifications against July quotas already have been heavy, although not due until May 15.

Cold-Finished Steel Bars and Shafting.—There is a very steady demand for screw stock bars, but it is greater in specifications on contracts than on strictly new business. Almost all of the important consumers and jobbers were covered by contract and there have been no demands to occasion much supplementary buying. There is a measure of satisfaction to makers here when they make comparison with the condition at this time last year; then, orders were on a diminishing scale, while today they are steady and even rising. The price, 2.70c., base, Pittsburgh, is the contract level and there is not enough new demand to test that figure. Shafting demands are light. Prices are given on page 1456.

Hot-Rolled Flats.—The market is holding well and there is a fairly active demand in the narrower sizes. There is almost no shading of 2.40c., base, on stock narrower than 6 in., while 2.20c., base, is well sustained on 6 to 12-in. stock. Wider than 12-in. uncoiled, however, has to contend with plate and jobbing mill products. Prices are given on page 1456.

Cold-Rolled Strips.—There is not much demand and in the effort of makers to secure operating schedules the market has weakened. While there is still a quotation of 4c., base, Pittsburgh, 3.85c. has become fairly common and on worthwhile lots as low as 3.75c. has been done.

Iron and Steel Bars.—Mills in this district continue to hold a range of 2c. to 2.10c., base, Pittsburgh, for

steel bars, the size of the inquiry determining quotations. Ordinary small lot business is not acceptable to local mills now at less than 2.10c., but what would be considered a small order in an active market now is regarded as large. There is no shading, however, of the minimum price. Iron bars are steady in price but demand is moderate. Prices are given on page 1456.

Structural Material.—Pittsburgh district mills are adhering closely to recent prices. Demands are moderate because this particular district has not lately been prolific of other than small structural business and not many of these. The structural shops have been rather fully engaged, but shipments against old jobs have been running well in excess of new business, and current shop activities also are affected by the failure of specifications to be made against several jobs placed late last year and the fore part of this year. Prices are given on page 1456.

Plates.—Makers still are having greater difficulty in stiffening prices of plates than of bars and shapes. There is a fairly steady run of buying by boiler makers and the fact that a fair amount of line pipe business still is in process provides an outlet for a fair tonnage of this product. Strictly new demands, however, particularly for car plates, are very light, although there is a strong belief that the railroads soon will be in the market for supplies of rolling stock. Prices are given on page 1456.

Rails and Track Supplies.—Conditions are much as they have been for several weeks. There is almost no demand at all for light rails and prices are purely nominal. Spikes and tie plates are moving very slowly. Prices of these lines are unchanged, but also largely untested. They are given on page 1456.

Tubular Goods.—Reports about business in pipe are of a much more cheerful tenor than those about most other finished products. Demand is very steady, and while it does not provide the mills with backlogs of any consequence, it is sufficient to give independent producers of steel pipe a 60 per cent operation. The leading producer, because of some good sized line pipe business, is operating at 75 to 80 per cent, which would give the entire pipe branch of the industry an average of around 70 per cent. While some weakness still is observed in the secondary market locally, the mill prices are as firm as ever and resale prices in other parts of the country are in close accord with mill prices. Jobbers are not carrying very heavy inventories and the supply situation for that reason is regarded as favorable, especially as current production does not exceed current requirements. There has been no change for the better in the boiler tube situation. Discounts are given on page 1456.

Bolts, Nuts and Rivets.—Buyers seem to have an idea that prices are not going to be higher and that they may possibly come down and their purchases are in accord with that idea, being entirely for small lots for prompt delivery. Prices and discounts are given on page 1457.

Coke and Coal.—Blast furnace suspensions have been rather frequent lately, and in a number of cases they have meant the suspension of shipments of Connellsville coke on contracts. These tonnages have come upon the market and have tended to weaken prices. Lately only small lots of high grade furnace coke have commanded as high as $3.15 per net ton at ovens, while the bulk of the offerings have moved at $3. There also seems to be an ample supply of spot foundry coke at $4 to $4.50 for all except what are known as special brands, which, because of extra cost in preparation, continue to sell up around $5 in open top cars. Negotiations for third quarter tonnages of furnace coke have started but so far no actual business has been done. Quotations of less than $3.25 are reported on third quarter tonnages. Curtailment of coal production, in the lack of any increase in the demand, has been without effect upon prices. Prices are given on page 1457.

Old Materials.—This market has grown firmer since a week ago, chiefly as a result of some fair sized purchases by down river mills of heavy melting steel, which have disclosed that such material is not very plentiful. A portion of the tonnage was sold at $16.75 but most of it commanded $17 and today the latter is the low figure. Dealers who sold are trying to cover at $16.50 but with little or no success. It is probably too soon to say that this transaction has marked a turning point in the market, but it is commonly commented upon that there is not much steel works scrap in dealers' yards and industrial producers seem disposed to let their scrap accummulate rather than sell at today's prices. Prices are relatively higher in the East than they are here and much of the railroad scrap has gone to outside consuming points because of higher net returns. Heavy melting steel in the Pennsylvania Railroad May list sold at $17.08 per gross ton delivered at Massillon, Canton and Warren, Ohio, and the Erie Railroad scrap is reported to have brought almost as much in the Youngstown district. The best bid still out for turnings and other light material is $12, but no sales are noted that low.

We quote for delivery to consumers' mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton

Heavy melting steel	$16.75 to $17.00
No. 1 cast, cupola size	17.50 to 18.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	17.50 to 18.00
Compressed sheet steel	15.00 to 15.50
Bundled sheets, sides and ends	14.00 to 14.50
Railroad knuckles and couplers	19.00 to 19.50
Railroad coil and leaf springs	19.00 to 19.50
Low phosphorus blooms and billet ends	21.50 to 22.00
Low phosphorus plate and other material	20.50 to 21.00
Railroad malleable	17.00 to 17.50
Steel car axles	19.50 to 20.00
Cast iron wheels	17.00 to 17.50
Rolled steel wheels	19.00 to 19.50
Machine shop turnings	12.00 to 12.50
Short shoveling turnings	12.00 to 12.50
Sheet bar crops	19.00 to 19.50
Heavy steel axle turnings	16.50 to 17.00
Short mixed borings and turnings	12.00 to 12.50
Heavy breakable cast	14.00 to 14.50
Stove plate	13.50 to 14.00
Cast iron borings	12.00 to 12.50
No. 1 railroad wrought	13.50 to 14.00
No. 2 railroad wrought	16.50

Thropp Properties Bought by W. S. Pilling

PHILADELPHIA, May 12.—W. S. Pilling, Philadelphia, pig iron merchant and director of the Replogle Steel Co., was the successful bidder in the purchase of the blast furnaces and other properties of the Joseph Thropp Co., which were sold at public auction on May 5 and 6. The purchase price was $800,000. The property has been in the hands of a receiver, Andrew S. Webb, for a year and a half and was sold by his order to satisfy creditors. The properties include ore and coal lands, limestone quarry and the Everett and Saxton blast furnaces, the former at Everett and the latter at Saxton, Pa. Mr. Pilling says that Saxton furnace will be dismantled, but Everett furnace will be operated whenever market conditions permit.

Little Unemployment at Youngstown

YOUNGSTOWN, May 11.—In spite of intermittency in employment by iron and steel properties in this district, banks and other financial institutions continue to report gains in deposits. Secondary steel properties are operating at a uniformly high rate, but there has been a curtailment by primary steel makers, resulting in a moderate surplus of workers. Building construction and railroad maintenance programs have absorbed a considerable number of men, helping to reduce unemployment to a minimum.

While there has been very little actual unemployment, there is considerable irregularity in employment. If there is any dissatisfaction with current wage rates, there are no evidences of it. What the men in the mills desire is steadier employment at current levels, and longer hours in many cases.

Chicago

Steel Steady, Operations Sustained but Pig Iron Lower

CHICAGO, May 12.—Another decline of $1 a ton in pig iron was the major development in a week, which was otherwise devoid of important price changes. Among finished products, sheets still show pronounced weakness, while wire products are soft, but have given no further ground except in one commodity, cement coated nails, which have been sold at as low as $1.95, Western mill. The heavy tonnage products, at the new level of 2.20c., Chicago, for plates and shapes and 2.10c. for bars, are steadier than has been the case for some time. Shading in bolts and nuts is more frequent, but cast-iron pipe on the other hand, is recovering from its recent weak position. Scrap remains without trend, with prices on most commodities stationary, while a few grades have advanced.

Continued heavy shipments of the heavier forms of finished steel are reflected in the operations of the two leading local producers, which still range from 90 to 95 per cent of ingot capacity. Twenty-eight out of the 35 steel works blast furnaces in this district remain active. New business is light and specifications, although still encouraging, are not equal to current shipments.

Local mills will roll 50,000 tons of plates, shapes and bars for 5500 cars placed by the St. Paul. This road is expected to place 1000 more cars this week, and 500 cars and 1000 repairs later. Altogether the St. Paul purchases will require close to 80,000 tons of plates, shapes, bars and axles.

Pig Iron.—Another decline in local iron to $21, base, Chicago furnace, has aroused more interest among buyers, but without as yet actually stimulating a buying movement. Melters are still in an indecisive mood, but are watching market developments closely with a view of placing their requirements when they are convinced that prices have touched bottom. Feelers which have been put out by important buyers indicate that purchases, when they are made, will cover all of last half. In the meantime some tonnage is being placed for early shipment, and in a number of instances for third quarter. Commitments of furnaces thus far in May have been twice as large as those for April, which was an exceptionally quiet month. The trade generally looks for a real buying movement to develop either before the close of this month or early in June. It is pointed out that most melters bought the major part of their first half needs during the winter buying movement. Purchases beyond first half have been negligible, and with third quarter approaching, buyers will have to make provision for their forward requirements. Melt in this territory is well sustained. Foundry coke shipments, which are a dependable barometer of foundry operations, are only 10 per cent lower than six weeks ago. A local buyer has closed for 200 tons of low-phosphorus. Silvery remains active, a Wisconsin melter having purchased 400 tons of 8 per cent. Merchant furnace operations in this district are unchanged, except that the Mayville stack, which was banked a few days last week for repairs, has resumed.

Quotations on Northern foundry, high phosphorus, malleable and basic irons are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	$21.00
Northern No. 1 foundry, sil. 2.25 to 2.75	21.50
Malleable, not over 2.25 sil.	21.00
Basic	21.00
High phosphorus	21.00
High Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2, sil. 1.75 to 2.25	24.51
Low phos., sil. 1 to 2 per cent, copper free	32.65
Silvery, sil. 8 per cent	31.29
Electric ferrosilicon, 14 to 16 per cent	$44.00 to 45.00

Ferroalloys.—The ferroalloys are quiet.

We quote 80 per cent ferromanganese, $122.56, delivered; 50 per cent ferrosilicon for 1925 delivery, $85, delivered; spiegeleisen, 18 to 22 per cent, $40.64 to $40.58, delivered.

Plates.—The Chicago, Milwaukee & St. Paul has placed orders with Western car builders for 5500 cars, requiring 50,000 tons of plates, shapes and bars, which will be rolled by local mills. The same road will place 1000 to 2500 additional cars soon. Nothing definite has developed from the rumors of impending large inquiries from other Western roads. Oil storage tank orders are confined to scattered small tonnages, but heavier buying is looked for. Plate prices have been less erratic since they settled to 2.20c., Chicago.

The mill quotation is 2.20c., Chicago. Jobbers quote 3.10c. for plate out of stock.

Structural Material.—Fabricating awards for the week were heavy, including two large projects which alone accounted for 9000 tons. The Ambassador Theater, St. Louis, 6000 tons, was placed with the Mississippi Valley Structural Steel Co. An addition to the State capitol, Lincoln, Neb., 3000 tons, went to the Omaha Steel Works. Both of these tonnages will be rolled here. There has been no further change in plain material prices.

The mill quotation on plain material is 2.20c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Bars.—Shipments of soft steel bars are still heavy and the pressure for deliveries from some directions is undiminished. Current specifications, although still in encouraging volume, are not equal to shipments, and new business is quiet, but slightly more active than during the previous two weeks. The ruling price remains at 2.10c., Chicago, although one interest continues to ask 2.20c. Bar iron demand is fair, with prices unchanged at 2.10c., Chicago. Rail steel bars continue to be held at 2.10c., mill, with new business rather light except in the reinforcing field.

Mill prices are: Mild steel bars, 2.10c. to 2.20c.; common bar iron, 2.10c., Chicago; rail steel, 2.10c., Chicago mill.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.80c. for rounds and hexagons and 4.30c. for flats and squares; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.60c. to 2.70c.

Sheets.—Demand is light and mills are operating on a hand-to-mouth basis, rarely accumulating more than two or three weeks of work ahead. A leading Western producer, however, is still operating all of its hot mills. Prices have shown further weakness and now range from 3.40c. to 3.45c., Chicago district mill on black, from 4.50c. to 4.55c. on galvanized and from 2.50c. to 2.55c. on blue annealed.

Chicago delivered prices from mill are 3.45c. to 3.50c. for No. 28 black, 2.65c. to 2.60c. for No. 10 blue annealed and 4.55c. to 4.60c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.80c. base for blue annealed, 4.50c. base for black, and 5.50c. base for galvanized.

Wire Products.—Mill bookings during the week have been erratic, varying from poor to good. On the whole, the situation appears substantially unchanged so far as commitments are concerned. Prices cannot yet be described as firm, but there have been fewer departures from $2.85, Chicago district mill, on nails and $2.60 on plain wire. Cement coated nails, on the other hand, are exceedingly soft, $2, Western mill, being a rather common price and as low as $1.95 having been done.

We quote warehouse prices f.o.b. Chicago: No. 8 black annealed wire, $3.05 for 100 lb.; common wire nails, $3.15 per keg; cement coated nails, $2.45.

Rails and track supplies.—New business has been confined to small orders for track supplies.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, 1.80c. to 1.90c., f.o.b. makers' mill.

Standard railroad spikes, 3c. mill; track bolts with square nuts, 4c. mill; steel tie plates, 2.35c., f.o.b. mill; angle bars, 2.75c. f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.55c. base, and track bolts, 4.55c. base.

Cast-iron Pipe.—This commodity is showing greater strength, most current bids being on the basis of $40, base, Birmingham, for 6-in. and larger, or slightly under that level. Milwaukee awarded 196 tons of 20-in. at $38, base, Birmingham, to the United States Cast Iron Pipe & Foundry Co., the only bidder, but this tonnage was regarded in the nature of an addition to a much larger tonnage recently placed with the same company. Hammond, Ind., has awarded 893 tons of 24 and 30 in. to the United States company. Toledo has placed 150 tons with the Alabama Pipe Co. Manitowoc, Wis., has awarded 150 tons to the National Cast Iron Pipe Co. James B. Clow & Sons will furnish 100 tons for Sturgeon Bay, Wis., and 180 tons for South Chicago Heights, Ill., and were low bidders on 1000 tons for Ferndale, Mich. Bloomfield, Mich., a Detroit suburb, took bids yesterday on 700 tons. Sturtevant, Wis., will take general contract figures May 22 on 350 tons of 6 and 8 in.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., $50.70 to $52.26; 6-in. and over, $46.70 to $48.20; Class A and gas pipe, $4 extra.

Bolts, Nuts and Rivets.—Concessions on bolts and nuts are more numerous than heretofore. On bolts there is an increasing tendency to grant an extra discount of 5 per cent, heretofore confined to carload orders, to less than carload orders, also. This would make the quotation on large machine bolts 50 and 10 and 10 and 5 off. In a similar manner hot pressed nuts, square, have been offered at 4.25c. off, and in hexagons and 4.65c. off. The situation in rivets is unchanged, with prices holding fairly well, although not free from occasional shading. Bolt and nut specifications from the implement and automobile industries are in undiminished volume. Implement and tractor plants expect to maintain satisfactory, if not full, operations straight through the summer, which is ordinarily their dull season.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.70c.; machine bolts up to ⅝ x 4 in., 55 per cent off; larger sizes, 55 off; carriage bolts up to ⅝ x 4 in., 50 off; larger sizes, 50 off; hot-pressed nuts, squares, tapped or blank, $3.50 off; hot-pressed nuts, hexagons, tapped or blank, $4 off; coach or lag screws, 60 per cent off.

Warehouse prices.—Local jobbers have reduced cold rolled strip and flat wire from 6.90c. to 6.35c., base, Chicago warehouse. There has also been a readjustment of extras. With the 6.90c. base, the extra on orders of a size were as follows: less than 36,000 lb. to 2000 lb., 25c. per 100 lb.; less than 2000 to 1000 lb., 40c.; less than 1000 to 500 lb., 55c.; less than 500 to 100 lb., 75c.; less than 100 lb., $1.50. The new extras on orders of a size follow: over 2000 lb., no extra; under 2000 to 1000 lb., 15c. per 100 lb.; under 1000 to 500 lb., 30c.; under 500 to 300 lb., $1; under 500 to 100 lb., $2; less than 100 lb., $3.

Reinforcing Bars.—Lettings during the week were few, but this may be accounted for by a stiffening in the attitude of distributors on prices. Recently billet steel reinforcing bars declined to 2.60c., Chicago warehouse, in sympathy with the weakness in mill prices, but that figure appears to have disappeared and current quotations are at 2.70c. A large amount of new work is up for consideration. Lettings include:

Medical Building, University of Iowa, Iowa City, 500 tons to Kalman Steel Co.

Section of Mason Street bridge, Milwaukee, 100 tons to Olney J. Dean & Co.

Hospital addition, Kenosha, Wis., 100 tons of rail steel to Inland Steel Co.

Pending work includes:

Additional section, Mason Street bridge, Milwaukee, Wis., 700 tons, general contract bids opened May 11.

Section G, sewer, St. Paul, Minn., 300 tons.

Philips Garage building, Gary, Ind., 200 tons.

Bank and office building, Lincoln Avenue and Irving Park Boulevard, Chicago, 200 tons.

Theater, store and dance hall building, Hammond, Ind., 200 tons.

Sewage disposal plant, East Chicago, Ind., 100 tons, general contract awarded to H. B. Olney, Indiana Harbor, Ind.

Hospital, Elmhurst, Ill., 100 tons, Ivar Viehe-Naess & Co., architect, Chicago.

Kresge Co. store, 9130 Commercial Avenue, South Chicago, 100 tons.

Pumping station, East Chicago, Ind., 100 tons.

Martha Wilson Memorial Hospital, Chicago, 200 tons, Holabird & Roche, architect, Chicago.

Martha Washington Hospital, Chicago, 100 tons, Meyer J. Sturm, architect, Evanston, Ill.

Twelfth Church of Christ, Scientist, Chicago, 100 tons, general contract awarded to H. B. Barnard, Chicago.

Old material.—The market is exceedingly quiet and prices show little variation one way or the other. There has been little consumer buying except of rerolling rails, which have advanced following two important purchases. There is nothing in the present situation, however, to lead one to expect a general upward movement of prices. Railroad offerings include the Soo Line, 1350 tons, and the Chesapeake & Ohio, 6000 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

	Per Gross Ton	
Iron rails	$16.00 to	$16.50
Cast iron car wheels	16.00 to	16.50
Relaying rails, 56 and 60 lb.	25.00 to	26.00
Relaying rails, 65 lb. and heavier	26.00 to	31.00
Forged steel car wheels	18.00 to	18.50
Railroad tires, charging box size	18.00 to	18.50
Railroad leaf springs, cut apart	18.00 to	18.50
Rails for rolling	17.00 to	17.50
Steel rails, less than 3 ft.	17.50 to	18.00
Heavy melting steel	14.75 to	15.25
Frogs, switches and guards cut apart	15.50 to	16.00
Shoveling steel	14.50 to	15.00
Drop forge flashings	11.00 to	11.50
Hydraulic compressed sheets	12.50 to	13.00
Axle turnings	13.00 to	13.50
Steel angle bars	16.50 to	17.00
Steel knuckles and couplers	17.50 to	18.00
Coil springs	19.00 to	19.50
Low phos. punchings	16.00 to	16.50
Machine shop turnings	8.50 to	9.00
Cast borings	9.75 to	10.25
Short shoveling turnings	9.75 to	10.25
Railroad malleable	17.50 to	18.00
Agricultural malleable	16.50 to	17.00
Per Net Ton		
Iron angle and splice bars	16.00 to	16.50
Iron arch bars and transoms	18.50 to	19.00
Iron car axles	25.50 to	26.00
Steel car axles	17.00 to	17.50
No. 1 busheling	10.50 to	11.00
No. 2 busheling	8.50 to	9.00
Pipes and flues	10.00 to	10.50
No. 1 railroad wrought	13.25 to	13.75
No. 2 railroad wrought	13.00 to	13.50
No. 1 machinery cast	16.50 to	17.00
No. 1 railroad cast	15.25 to	15.75
No. 1 agricultural cast	15.00 to	15.50
Locomotive tires, smooth	16.00 to	16.50
Stove plate	13.25 to	13.75
Grate bars	13.00 to	13.50
Brake shoes	13.00 to	13.50

New Open Hearth Furnace at Fairfield Operating

BIRMINGHAM, May 12.—The first unit of the four open-hearth furnaces of the Tennessee Coal, Iron & Railroad Co. at Fairfield, is now in operation and the other furnaces will be started up as quickly as the bottoms can be dried out. The Tennessee company has been in the market for scrap iron and steel and has a fairly good tonnage of basic iron on hand to meet needs of the new plant as well as the steel mills at Ensley.

Progress is reported on the sheet mill of the Tennessee Coal, Iron & Railroad Co., which is being built twice the original size, and for completion in the early fall.

Firmer Scrap Market in Detroit

DETROIT, May 12.—With an increased demand for blast furnace materials the scrap market in this district has assumed a tone of firmness. This situation was preceded by a large purchase by a Cleveland mill a week ago and dealers generally have a more optimistic feeling.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$12.00 to	$14.00
Borings and short turnings	10.25 to	10.75
Long turnings	9.75 to	10.25
No. 1 machinery cast	15.00 to	16.00
Automobile cast	20.00 to	21.00
Hydraulic compressed	11.25 to	11.75
Stove plate	14.50 to	15.50
No. 1 busheling	11.00 to	12.00
Sheet clippings	8.50 to	9.25
Flashings	10.00 to	11.00

New York

Pig Iron Buying Continues in Considerable Volume

NEW YORK, May 12.—Pig iron sales in the New York district in the past week are estimated in excess of 25,000 tons. The purchases included several by corporations whose buying is done through New York for plants in other districts. Quite a little of the iron was for Jersey foundries. A good part of the week's business, as is the case with inquiries now pending, was for third quarter delivery. There were also a good many small lots for the present quarter. Prices have shown little change from those in the preceding week, though sentiment among sellers is a bit more cheerful. Both Buffalo and eastern Pennsylvania furnace companies are attempting to establish again the silicon differential after a period in which quotations of the base price were followed by the buyers' specification of No. 2X or higher silicon. Some eastern Pennsylvania furnaces continue to quote $20.25 to $20.50 in competition with Buffalo but on deliveries at points in which Buffalo is not competitive, as in New Jersey, a range of $20.50 to $21 is more common. Pending inquiry is considerable, represented by a number of 500 and 600-ton lots together with a goodly number for smaller tonnages. The buying movement of the past two weeks is seen by producers to represent the desire of important consumers to cover in part for the third quarter at prices which are considered to be near, if not at, low point. The rate of foundry consumption is generally unchanged, and both kinds of reports are made—here and there full operation and in other directions some reduction of foundry forces. Pig iron production in eastern Pennsylvania is falling off somewhat and one or two more furnaces are likely to go out in the near future.

We quote delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25	$22.77 to $23.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	23.02 to 23.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	22.77 to 23.02
Buffalo, sil. 1.75 to 2.25	23.91 to 24.91
No. 2 Virginia, sil. 1.75 to 2.25	28.44

Ferroalloys.—The ferroalloy market is extremely quiet, with sales and inquiries confined to only a few small and carload lots.

Warehouse Business.—Even the light volume of buying of recent weeks has declined. In most lines demand is weaker and prices soft. Structural steel moved in fair but falling volume. The price reductions of a week ago in sheets provided no stimulus. Mills are reaching into the jobbers' domain and taking small lots to fill rollings or to move mill stocks. Price cutting has extended to welded pipe and prices on bars are soft. See page 1476 for prices. We quote boiler tubes per 100 ft. as follows:

Lapwelded steel tubes, 2-in., $17.33; seamless steel, 2-in., $20.24; charcoal iron, 2-in., $25; 4-in., $67.

Cast-Iron Pipe.—Prices on bell and spigot pipe continue to fluctuate over a wide range. Most of the current purchasing is by private companies, but an occasional municipal letting in the New England district generally brings out rather low prices quoted by American pipe producers. An inquiry by the city of Newton, Mass., for about 750 tons of mostly 20-in. pipe resulted in a low bid by the Pont-a-Mousson works, the French company, but as the delivery offered was extended, it is expected that award may be made to the next lowest bidder, the United States Cast Iron Pipe & Foundry Co. This latter company recently took about 200 tons of pipe inquired for by Saugus, Mass. On the basis of recent sales of water pipe, purchasers in this district might buy as low as $48.60 or $49.60 per ton, 6-in. base, delivered. The soil pipe market is still rather demoralized, with the foundries seeking business quoting discounts of several points higher than the usual schedule. In one instance as high as 57½ per cent off list is reported, against the usual 55½ per cent on heavy pipe.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, $50.60 to $51.60; 4-in. and 5-in., $55.60 to $56.60; 3-in., $65.60 to 66.60, with $5 additional for Class A and gas pipe. Discounts of both Northern and Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 43½ to 45½ per cent off list; heavy, 53½ to 55½ per cent off list.

Finished Iron and Steel.—Selling prices continue of paramount interest in a market in which steel orders are few and far between. The most interesting development is in plates. For many weeks the Eastern mills succeeded in maintaining the price at 2c., Pittsburgh basis, but in the past two weeks there have been nibbles at 1.95c. and then at 1.90c. A definite break to 1.90c. came a few days ago when a large producer notified many of its customers that it was ready to accept orders at this price. Other mills promptly followed suit and the competition for plate orders is keener. Structural shapes have been obtainable for weeks at 1.90c. to 2c., depending upon the mill and the attractiveness of the order. Steel bars remain at 2c. On 300 tons of rail steel bought for a plant which a Chicago company will build on Staten Island the price is reported to have been 2c. per lb., delivered. Structural steel activity continues in fair volume. New York is taking bids on another section of the Central Park West subway, requiring 4500 tons of steel. The purchase of 5500 cars by the Chicago, Milwaukee & St. Paul road, now in receivership, to be followed this week by the purchase of 1000 more, is one of the largest railroad car purchases in some time. These cars will take about 60,000 tons of steel. The Chesapeake & Ohio may release inquiries soon for 20,000 cars.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. to 2.44c.; plates, 2.24c. to 2.34c.; structural shapes, 2.24c. to 2.34c.

Coke.—Reduction of output has brought operations to about 50 per cent of capacity, a point where production and consumption are more nearly alined. Accumulations of furnace grades have been dwindling and spot coke is bringing $3.10 to $3.25 per net ton at oven. There is fair demand for foundry grades, quoted at $4 to $4.50. Inquiry for future delivery is inactive. By-product coke is unchanged at $10.41, Newark or Jersey City.

Old Material.—Increasing difficulty seems to be encountered by brokers in purchasing most grades of scrap, but current demand by consumers is so light that there is no evidence of a genuine scarcity. The entire market continues weak, but No. 1 heavy melting steel is holding fairly well at $14.50 per ton, delivered eastern Pennsylvania, the buying price of brokers. Rerolling rails are so little in demand as to make determination of the actual market price difficult. The lower grades are occasionally shipped for No. 1 heavy melting steel. Stove plate still covers a wide range of prices, with $12.75, delivered, being paid on shipments to a New Jersey consumer taking a $2.02 freight rate and $12.50 per ton, delivered, to consumers in eastern Pennsylvania. The foremost eastern Pennsylvania consumer of borings and turnings is at present out of the market and quotations are largely nominal.

Buying prices per gross ton New York follow:

Heavy melting steel, yard	$10.00 to $10.50
Heavy melting steel, railroad or equivalent	11.00 to 11.75
Rails for rolling	12.50 to 13.00
Relaying rails, nominal	22.00 to 23.00
Steel car axles	17.50 to 18.00
Iron car axles	22.50 to 23.00
No. 1 railroad wrought	12.50 to 13.00
Forge fire	9.50 to 10.00
No. 1 yard wrought, long	12.00 to 12.50
Cast borings (steel mill)	8.00 to 8.50
Cast borings (chemical)	13.50 to 14.50
Machine shop turnings	8.00 to 8.50
Mixed borings and turnings	8.00 to 9.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	10.25 to 10.75
Stove plate	8.75 to 10.75
Locomotive grate bars	10.50 to 11.00
Malleable cast (railroad)	13.00 to 13.50
Cast iron car wheels	13.00 to 13.50
No. 1 heavy breakable cast	11.50 to 12.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$15.00 to $15.50
No. 1 heavy cast (columns, building material, etc.), cupola size	13.00 to 13.50
No. 2 cast (radiators, cast boilers, etc.)	12.00 to 12.50

Cincinnati

Increasing Interest in Third Quarter Iron —Sales Show Price Weakness

CINCINNATI, May 12.—Competition between southern Ohio and Lake interests has brought a further recession in pig iron prices during the past week. The Hooven, Owens & Rentschler Co., Hamilton, Ohio, bought 4300 tons of Northern foundry and malleable iron for less than $20, Ironton. Other sales of Northern iron have been reported at prices of $19.50, Ironton, although the market is quoted by most dealers at $20. Tennessee iron is now moving into this territory at a basis of $18, Birmingham, while a sale of 100 tons of Alabama iron was made locally at a special price concession. Alabama furnaces continue, however, to ask $20 to $22, Birmingham. The volume of sales in Cincinnati territory indicates low consumer stocks. Inquiries, especially for the third quarter, are increasing. Sales the past week have included 500 tons of foundry by a Lake furnace to the Hoosier Iron Works, Kokomo, Ind.; 400 tons of foundry to a central Ohio melter; 300 tons of resale iron to a Rome, Ga., consumer; 250 tons of Tennessee iron to the Peerless Mfg. Co., Louisville, Ky., and a like amount to an Indiana melter; 250 tons of Northern foundry iron to an Indiana melter and 100 tons of Northern foundry to a local melter. Pending inquiries are Columbus Malleable Iron Co., Columbus, Ohio, 1000 to 1500 tons of Northern malleable; a Detroit melter, 1500 tons of foundry; the American Seeding Machine Co., Springfield, Ohio, 500 tons of Northern foundry; Iron Products Co., Columbus, 350 tons of Northern foundry; Wagner Mfg. Co., Sidney, Ohio, 350 tons of foundry and 100 tons of silvery; the National Cash Register Co., Dayton, Ohio, 200 tons of Northern foundry, and a Galion, Ohio, melter, 100 to 300 tons of Northern foundry.

Based on freight rates of $4.05 from Birmingham and $2.27 from Ironton we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	$24.05 to $25.05
Alabama fdy., sil. 2.25 to 2.75	24.55 to 25.55
Tennessee fdy., sil. 1.75 to 2.25	22.05
Southern Ohio silvery, 8 per cent	28.77
Southern Ohio fdy., sil. 1.75 to 2.25	21.77 to 22.27
Southern Ohio, basic (nominal)	22.27
Southern Ohio malleable	22.27

Structural Steel.—The local market has been quiet. L. Schreiber & Sons Co. has been awarded the Cincinnati Times-Star garage job, 120 tons, while the General Iron Works will supply about 125 tons for the warehouse of the Kroger Grocery & Baking Co., Cincinnati. Several small jobs were let during the past week. Considerable business is now pending. Bids have been taken on the Lowe Apartments, Dayton, Ohio, involving 500 tons. Decision is expected shortly on the Federal Land Bank, Louisville, Ky., 200 tons, and the Third National Bank, Dayton, Ohio, 1500 tons. An increase in the number of bids on small jobs is reported by fabricators. Prices remain unchanged at 2.10c., Pittsburgh.

Reinforcing Bars.—There has been a temporary lull in the local market. No sizable awards have been made and there has been no increase in pending business. The contract for the building to be erected by Mills Brothers, 250 tons, is to be let shortly. Prices vary from 2c. to 2.10c., mill, on new billets and remain firm at 1.90c., mill, on rail steel.

Sheets.—A better feeling prevails locally and orders are slightly heavier. Many sellers feel that the bottom in prices has been reached. Quotations on black sheets range from 3.30c. to 3.35c., Pittsburgh. Galvanized sheets are being sold at 4.30c. to 4.35c., Pittsburgh, with blue annealed bringing 2.40c. to 2.45c., Pittsburgh. Auto sheets are quoted at 4.40c., Pittsburgh. Several large companies are disinclined to meet these prices, but whenever it is necessary to do so to retain regular customers, they make the concession. Several producers in Cincinnati territory have been working on large orders for auto sheets for Detroit automobile manufacturers. Mills of the Wheeling Steel Corporation, the Newport Rolling Mill Co., and the American Rolling Mill Co. are operating at a satisfactory rate, but all mills are dependent upon orders being booked from week to week to keep them on present schedules.

Bars, Shapes and Plates.—Several companies state that orders have increased materially. Inquiries are more numerous and buyers are expected to come into the market shortly. Practically no third quarter business is being placed. Purchasers are confining their orders to immediate requirements. Prices are showing signs of becoming more stable. Large orders are bringing 2c., Pittsburgh, with carloads selling at 2.10c., Pittsburgh. Sellers report that the latter quotation is gaining strength.

Wire Products.—A considerable increase in sales of wire has been reported in the past few days. Dealers feel encouraged over the outlook for fairly good business in the immediate future. Jobbers' stocks are rather low and it is anticipated that they will have to come into the market to replenish their supplies. Consumer buying is confined principally to orders for quick shipment. Plain wire is firm at 2.50c., Pittsburgh. Inquiry reveals that dealers are adhering strictly to this quotation. The demand for nails continues to lag. Sellers, however, feel that the stocks of jobbers are meager and that increased sales will result within the next month. Prices continue steady at 2.75c., Pittsburgh.

Warehouse Business.—The volume of sales maintains about the same level as prevailed in April. The number of orders is considered good, but consumers are buying only in small quantities. Several jobbers state that a slight increase in business has taken place in the past week. Cold-rolled steel has been in fair demand. Structural steel and reinforcing bars have been active. Quotations are firm and have not changed.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4.35c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled squares, 4.55c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, 4.60c.; No. 28 galvanized sheets, 5.75c.; No. 9 annealed wire, $3.25 per 100 lb.; common wire nails, $3.25 per keg base; cement coated nails, $2.65 per keg; chain, $7.55 per 100 lb. base; large round head rivets, $3.75 base; small rivets, 65 per cent off list. Boiler tubes, prices net per 100 ft., lap welded steel tubes, 2-in., $18; 4-in., $38; seamless, 2-in., $19; 4-in., $39.

Coke.—Specifications for foundry coke during May have been fairly good, but there is little activity in furnace coke. Sales have been confined chiefly to small tonnages. Price shading of by-product foundry coke continues. Prices are slightly weaker.

Connellsville furnace, $3 to $3.50; foundry, $4.25 to $5.25; New River foundry, $8.00 to $8.50; Wise County furnace, $3.50 to $4.00; foundry, $4.50 to $6.00; by-product foundry, $6.50 Connellsville basis.

Old Material.—The scrap market remains extremely weak. One dealer reports a slight improvement, but others say that conditions are decidedly unfavorable. Mills are taking shipments on contract and are buying small tonnages whenever they can secure a low enough price. Several railroads have large lists closing shortly. It is expected that these will go at low figures.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

	Per Gross Ton
Heavy melting steel	$13.00 to $13.50
Scrap rails for melting	13.50 to 14.00
Short rails	17.50 to 18.00
Relaying rails	28.00 to 28.50
Rails for rolling	15.00 to 15.50
Old car wheels	13.50 to 14.00
No. 1 locomotive tires	16.50 to 17.00
Railroad malleable	16.00 to 16.50
Agricultural malleable	14.50 to 15.00
Loose sheet clippings	9.50 to 10.00
Champion bundled sheets	12.00 to 12.50
	Per Net Ton
Cast iron borings	8.50 to 9.00
Machine shop turnings	7.50 to 8.00
No. 1 machinery cast	17.50 to 18.00
No. 1 railroad cast	15.00 to 15.50
Iron axles	22.00 to 22.50
No. 1 railroad wrought	11.00 to 11.50
Pipes and flues	7.50 to 8.50
No. 1 busheling	9.50 to 10.00
Mixed busheling	8.50 to 9.00
Burnt cast	9.50 to 10.00
Stove plate	10.00 to 10.50
Brake shoes	11.00 to 11.50

San Francisco

Buying Strengthens as Prices Weaken—French Company Takes Pipe Order

SAN FRANCISCO, May 9 (*By Air Mail*).—Buyers are beginning to enter the market with more confidence. Developments during the past week brought out several fresh inquiries, emphasized the weakness of prices, and resulted in the closing of a fairly good volume of business. The Southern Pacific Co. placed 950 kegs of track bolts with an unnamed mill and 600 tons of coke with an unnamed local dealer. An order for 1500 tons of Southern foundry iron, silicon 3.25 to 3.75 per cent, was placed by a local dealer for third quarter delivery. The City of Vernon, Cal., placed 3500 tons of cast iron pipe with the Pacific Pipe & Supply Co., Los Angeles, which will furnish French pipe. The bid that took the order is not known, but it is understood to be in the neighborhood of $49, base, delivered. Other smaller orders for both French and Belgian pipe have been placed recently in the Los Angeles territory.

An inquiry is in the market for 800 tons of 60-lb. rails, and another for 80 tons of forging billets. A local dealer is booking orders for German foundry iron at $26.50, duty paid, f.o.b. cars San Francisco, for late June shipment. The Northern Pacific Railroad is planning to build 150 miles of Oregon Trunk Line from Bend to Klamath Falls, Ore., and the Southern Pacific Co. is planning to build 11 miles of track from Valley Springs, Cal., to the Calaveras Cement Co. proposed plant in Calaveras County, 1½ miles from San Andreas, Cal.

Pig Iron.—German foundry iron is being quoted at $26.50, duty paid, f.o.b. cars San Francisco, for late June shipment, by a local dealer. A large tonnage of Utah iron has been sold recently on contract for third quarter, at $27.50, delivered. There have been no new developments in Chinese basic, which was offered two weeks ago at $22.50 with no takers. Small sales of Dutch and Indian iron have been made in the Los Angeles district. Prices are holding steady.

*Utah basic	$27.25 to $28.25
*Utah foundry, sil. 1.75 to 2.25	27.50 to 28.50
**Scotch foundry	28.00 to 30.00
**English foundry	27.00 to 28.00
**Belgian foundry	26.00
**Dutch foundry	25.25 to 26.50
**Indian foundry	26.00
**Germany foundry	26.50
*Birmingham, Ala., foundry, sil. 2.75 to 3.25	31.00 to 32.00

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—About 2100 tons were placed during the week. The Utah Light & Power Co. penstock job at Whellen, Utah, involving about 1300 tons, was placed with an Eastern mill, and a local concern placed 150 tons of ship channels with an Eastern producer. Plans for the four transmission towers to be erected at Antioch, Cal., for the Pacific Gas & Electric Co. are being revised, and new bids will be called. The Baker Iron Works took 500 tons for an addition to the Heywood Hotel in Los Angeles. Prices are weak. Quotations are still 2.50c. to 2.55c., c.i.f. Coast ports, although less than 2.50c. is now considered possible for desirable tonnages. Large foreign material is still quoted at 2.20c., c.i.f., duty paid, at Coast ports. There is no quantity of foreign shapes here at present.

Plates.—Price weakness is more pronounced in plates than in shapes. A quotation was made recently below 2.45c. on a moderate tonnage, although the last business definitely closed involving a good tonnage was not known to have been under 2.45c. The range generally quoted is 2.45c. to 2.50c., c.i.f. Coast ports. The Utah Light & Power Co. penstock job at Whellen, Utah, calling for about 1200 tons, was placed with an Eastern mill. Vancouver Engineering works is low bidder on 6000 tons for the Vancouver, B. C., pipe line.

Cast Iron Pipe.—Awards during the week totaled 4341 tons, including the 3500 tons of French pipe for Vernon, Cal. Fresh inquiries have developed which call for several thousand tons. Quotations in this district are unchanged at $52 to $53 base, delivered. Other lettings include:

Santa Ana, Cal., 4 and 6 in., B, 100 tons, to National Cast Iron Pipe Co.
Multnomah, Ore., 6 and 8 in., B, 541 tons, to United States Cast Iron Pipe & Foundry Co.
San Gabriel Valley Water Co., San Gabriel, Cal., 4, 6, 8, 10 and 16 in., B, 200 tons, to Sidney Smith, Los Angeles.

Steel Pipe.—N. O. Nelson Mfg. Co. is low bidder for 222 tons of 6-in. joint bell and spigot welded steel pipe, the Grinnell Co. is low bidder for 431 tons of 4-in. standard steel line pipe, and the Pacific Pipe & Supply Co. is low bidder for 1138 tons of 6-in. standard steel line pipe, all for the City of Los Angeles.

Bars.—Lettings in reinforcing bars during the week amounted to more than 3032 tons. Prices are unchanged, local jobbers quoting 3.35c., base, carload out of stock and 3.80c., base, l.c.l. out of stock. Soft steel bars are firm at 2.55c. to 2.60c., base, here. Among the larger lettings in reinforcing bars were the following:

Drainage Improvement No. 11, Los Angeles County, Cal., 2375 tons, to an unnamed interest.
Bridge across Santa Ynez River at Lompoc, Cal., 175 tons, to unnamed jobber.
Five State highway bridges near Baker, Ore., 100 tons, to unnamed firm.
California State Highway Commission, two bridges at San Gabriel Creek and San Onofre Creek, Cal., 282 tons, to unannounced jobber.

Sheets.—Prices are on a lower Pittsburgh basis. Blue annealed sheets are quoted at 2.45c. to 2.50c., black sheets at 3.25c. and galvanized sheets at 4.30c. to 4.50c., all Pittsburgh base. The Columbia Steel Corporation was recently awarded 150 tons of 27-gage steel sheets for license plates, by the State of Washington.

Warehouse Business.—Improved buying is noted in nearly all lines, especially bars, plates and sheets. There is, however, no large buying, but the number of orders is said to be increasing and also the amount of material called for by individual orders. Conditions in the oil country continue sluggish. Prices are unchanged.

Merchant bars, $3.30 base, per 100 lb.; merchant bars, ⅝ in. and under, rounds, squares and flats, $3.80 base, per 100 lb.; soft steel bands, $4.15 base, per 100 lb.; angles, ¼ in. and larger x 1½ in. to 2¾ in., inc., $3.30 base, per 100 lb.; channels and tees, ¾ in. to 2¾ in., inc., $3.90 base, per 100 lb.; angles, beams and channels, 3 in. and larger, $3.15 base, per 100 lb.; tees, 3 in. and larger, $3.30 base, per 100 lb.; universal mill plates, ¼ in. and heavier, stock lengths, $3.30 base, per 100 lb.; spring steel, ¼ in. and thicker, $6.30 base, per 100 lb.; wire nails, $4 base, per 100 lb.; No. 10 blue annealed sheets, $4.20 per 100 lb.; No. 28 galvanized sheets, $6.25 per 100 lb.; No. 28, black sheets, $5.25 per 100 lb.

Coke.—The Southern Pacific Co. placed its order for 600 tons with a local dealer. Most of the current business is small, but the aggregate tonnage is substantial. Prices are holding fairly steady.

English beehive, $15 to $17 at incoming dock, and English by-product, $12.50 to $14.00; Birmingham, Ala., by-product, $19.50 to $20.50 delivered; Wise County, Va., beehive, $22 delivered.

Old Material.—Buying is small but consistent. Prices are unchanged. Local mills have fairly large stocks at present, as considerable material has been delivered recently. Heavy melting steel is holding at $11 per gross ton, deliverd, both here and in Los Angeles.

Buffalo

Large Melters Bought Pig Iron—Reinforcing Steel Improved

Pig Iron.—Considerably more active selling is going on locally since last writing and a volume of pig iron has been booked, though prices are about as before. Furnaces profess to see a strengthening trend. While some brokers are said to bave quoted $18.50 on Buffalo iron in New England, furnaces say they are adhering to $19 base with differentials. The inquiry for the past week was between 15,000 and 20,000 tons. Some of the largest melters came into the market. A combination of radiator interests, exclusive of the leading one, were in the market for between 5000 and 7000 tons and are believed to have covered. A New England

melter sought 5000 tons of foundry iron and two other individual inquiries were for 1000 tons apiece. The Crane Co. bought 500 tons of foundry iron. One local seller sold an aggregate of 16,000 tons. The Rogers-Brown Co. has banked another furnace. Furnacemen are encouraged over the present outlook. They believe the bottom has been reached. They are cutting liberally into stocks and much of the iron sold is for prompt shipment.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25	$19.00
No. 2X foundry, sil. 2.25 to 2.75	19.50
No. 1 foundry, sil. 2.75 to 3.25	20.50
Malleable, sil. up to 2.25	19.00
Basic	19.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—The general feeling is somewhat better, though conditions continue much as they have for the past few weeks. Bars and shapes are firm at 2.265c., delivered Buffalo. Reinforcing bar business is improving. The city of Buffalo has announced its intention to complete the third section of the Scajaquada Creek drain inclosure, and will receive bids this week. The third section will require 1500 tons of reinforcing steel. Miscellaneous bookings were about 500 tons. The reinforcing bar price is 2.365c. delivered and 2.75c. for stock material. Roadwork is going forward and several sizable jobs totaling several hundred tons are pending. Sheet demand is better. Fabricating work is dull.

Warehouse prices are being quoted as follows: Steel bars, 3.25c.; steel shapes, 3.35c.; steel plates, 3.35c.; No. 10 blue annealed sheets, 4.05c.; No. 28 black sheets, 4.75c.; No. 28 galvanized, 5.80c.; cold rolled shapes, 4.65c.; cold rolled rounds, 4.20c.; wire nails, 4.00c.; black wire, 4.05c.

Old Material.—A fair amount of buying is going on, but no sales of any large tonnages are reported, though one of the largest consumers in the district is expected in the market within a short time. Some scrap is coming out and prices are holding up better than was expected. Dealers believe that the least increase in buying will serve to boost the market a little. Heavy melting steel price for strictly No. 1 grade is about $16. The specialty scraps are still quiet, though a demand for knuckles and couplers and short steel rails during the week induced a few sales. The tonnage in each case was small, with the rails going at $18 to $19 and the angle bars and other specialties at $17.50 to $18. The movement in stove plate keeps up, with the price about $14.25.

We quote prices f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel	$16.00 to $16.50
Low phosphorus	18.50 to 19.50
No. 1 railroad wrought	14.00 to 14.50
Car wheels	15.00 to 16.00
Machine shop turnings	10.00 to 10.50
Cast iron borings	10.00 to 10.50
No. 1 busheling	15.50 to 16.00
Stove plate	14.00 to 14.50
Grate bars	12.50 to 13.00
Bundled sheets	11.50 to 12.00
Hydraulic compressed	14.50 to 15.50
No. 1 machinery cast	16.50 to 17.00
Railroad malleable	17.00 to 17.50
No. 1 cast scrap	16.50 to 17.00
Iron axles	26.00 to 27.00
Steel axles	17.00 to 17.50

Boston

Sharp Competition Continues Between Buffalo and Pennsylvania Furnaces

BOSTON, May 12.—Pig iron sales in this territory the past week were again comparatively heavy, bringing the aggregate for the past fortnight up to approximately 20,000 tons. Because much iron sold the past week was not on open inquiry, details are withheld. It is certain, however, Buffalo district furnaces placed 80 per cent to 85 per cent of the business, and Pennsylvania most of the remainder. It is equally certain Buffalo No. 2 plain sold as low as $18.50 on cars at furnace, and in one instance eastern Pennsylvania No. 2X at approximately $20 furnace. Buffalo furnace representatives today generally quote $19 furnace base for second quarter iron, with and without differentials. Third quarter is $19 to $19.50 base with differentials and fourth quarter $20 base. Eastern Pennsylvania apparently is not available for less than $21 furnace base. A sale of India iron at a price higher than quoted for Buffalo delivered is reported, but foreign iron generally is inactive. Local April importations were 6167 tons; 5109 tons India, 558 tons Dutch and 500 tons German, as against 11,365 tons in March. Imports for four months were 39,445 tons. At Providence, R. I., there are 6000 tons in stock, of which 4000 are sold. A round tonnage is due to arrive there shortly.

We quote delivery prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$24.15 to $24.65
East. Penn., sil. 2.25 to 2.75	24.65 to 25.15
Buffalo, sil. 1.75 to 2.25	23.91 to 24.91
Buffalo, sil. 2.25 to 2.75	23.91 to 25.40
Virginia, sil. 1.75 to 2.25	28.67 to 29.42
Virginia, sil. 2.25 to 2.75	29.17 to 29.92
Alabama, sil. 1.75 to 2.25	31.60
Alabama, sil. 2.25 to 2.75	32.10

Cast Iron Pipe.—Prices on small pipe hold firmly, but concessions of $1 to $1.50 and in some instances as high as $2 a ton have been quoted on large material. French pipe interests were the low bidders for 9600 ft. of 20-in. pipe required by Newton, Mass.. No award has been made as yet. East Jaffray, N. H., closed bids May 12 on 13,000 ft. of 10-in. pipe. The award will be made to a contractor. It is reported that one of the large Massachusetts gas companies has placed an exceptionally large order for pipe, August and September delivery, with the Warren Foundry & Pipe Co. Prices on domestic pipe follow: 4-in., $62.10 a ton, delivered Boston common rate points; 6-in. to 12-in., $57.10; 16-in. and larger, $56.10. The usual $5 differential holds on Class A and gas pipe. Bids close May 15 for 40,000 ft. of 6-in. and 8-in. pipe required by North Attleboro, Mass., for its line to Adamsdale, Mass.

Coke.—The demand for by-product foundry coke continues spotty, but collectively it is more active than last month. Some selling interests claim requisitions against first half contracts are 15 per cent to 20 per cent ahead of last month. Some users, who have not been in the market for months, are specifying. Both the New England Coal & Coke Co. and the Providence Gas Co. quote by-product foundry coke at $11.50 a ton delivered within New England.

Old Material.—A further easing in old material prices is noted, resulting from inactivity. About the only heavy melting steel moving is for Bethlehem Steel Co. use. Buyers are not offering more than $10.50 on cars for such material and usually $10. Specification pipe is generally $9.50 to $10 on cars, shafting and street car axles $16.50 to $17, and rails for rerolling $11.50 to $12, all these materials being 50c. a ton lower. Mixed borings and turnings at 6.50 to $7 are down 25c. Additional small sales of No. 1 machinery cast to New England foundries at $18.50 to $19 delivered are reported, and No. 1 textile machinery at $19.50.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast	$18.50 to $19.50
No. 2 machinery cast	16.50 to 17.50
Stove plates	13.00 to 13.50
Railroad malleable	18.00 to 19.00

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$10.00 to $10.50
No. 1 railroad wrought	13.00 to 13.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1-in. in diam., over 2 ft. long)	9.50 to 10.00
Machine shop turnings	7.00 to 7.50
Cast iron borings, chemical	10.00 to 10.50
Cast iron borings, rolling mill	7.50 to 8.00
Blast furnace borings and turnings	6.50 to 7.00
Forged scrap, steel mill use	8.50 to 9.00
Forged scrap, ordinary	7.50 to 8.00
Bundled skeleton, long	7.00 to 7.50
Bundled skeleton, short	9.00 to 9.25
Bundled cotton ties, long	8.00 to 8.50
Forged flashings	8.00 to 8.50
Shafting	16.50 to 17.00
Street car axles	16.50 to 17.00
Rails for rerolling	11.50 to 12.00
Scrap rails	10.00 to 10.50

St. Louis

Competition Keen for Structural Steel Business—Scrap and Coke Flat

ST. LOUIS, May 12.—The St. Louis Coke & Iron Co. sold 2500 tons of basic iron for delivery within 60 days to an East Side melter and 2000 tons of foundry iron, of which the greater part was for third quarter delivery. The largest lot of the foundry iron was 800 tons to a St. Louis manufacturer, 300 tons to a Quincy stove concern and 200 tons to an Iowa melter, the latter for prompt shipment. Prices are lower and a Chicago maker sold 500 tons to a West End machinery manufacturer at $19 f.o.b. Chicago. Southern iron has a wide range, from $18.50 to $20, and one independent maker is quoting $22, with no sales of course in this territory.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices, $2.16 freight from Chicago, $3.28 from Florence and Sheffield (rail and water), $5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City.

Northern fdy., sil. 1.75 to 2.25	$23.16 to $24.16
Northern malleable, sil. 1.75 to 2.25	23.16 to 24.16
Basic	24.16 to 24.66
Alabama fdy., sil. 1.75 to 2.25 (rail)	25.17
Alabama fdy., sil. 1.75 to 2.25 (rail and water)	23.28
Tennessee fdy., sil. 1.75 to 2.25	21.78
Granite City iron, sil. 1.75 to 2.25	22.31 to 23.31

Finished Iron and Steel.—The contract for the Ambassador Theater Building was awarded to the Boaz-Kiel Construction Co., St. Louis; plans as amended call for 3800 tons of structural steel and 2000 tons of reinforcing bars. Competition is keen for the steel business which will be awarded within the next week or ten days. The Missouri Pacific Railroad has issued an inquiry for 630,000 tie plates—8 x 10 x 9/16 in., a little larger than usual—which will require about 4000 tons of steel. Business in other lines is quiet.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, cold rolled, one pass, 4.80c.; galvanized steel sheets, No. 28, 5.80c.; blank corrugated sheets, 4.95c.; galvanized, 5.95c.; cold-rolled rounds, shafting and screw stock, 3.95c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, 7/8 in. diameter and smaller, 70 per cent off list; machine bolts, 55 per cent; carriage bolts, 50 per cent; lag screws, 60 per cent; hot pressed nuts, squares, $3.50; hexagons, blank or tapped, $4 off list.

Coke.—The demand for all industrial grades of coke is light and of course there is no call for domestic grades.

Old Material.—The only change in the situation as regards old material is that dealers are picking up bargains in distress cars wherever possible and are laying them down in their yards. Consumers are showing no interest. Prices are unchanged. New lists during the week include: Chicago & Eastern Illinois, 1000 tons; Missouri, Kansas & Texas, 1900 tons; Kansas City Southern, 650 tons; Pullman Company, St. Louis, 250 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	$12.00 to $12.50
Rails for rolling	16.25 to 16.75
Steel rails less than 3 ft.	17.00 to 17.50
Relaying rails, 60 lb. and under	25.00 to 26.00
Relaying rails, 70 lb. and under	30.00 to 30.50
Cast iron car wheels	15.50 to 16.00
Heavy melting steel	14.00 to 14.50
Heavy shoveling steel	14.00 to 14.50
Frogs, switches and guards cut apart	14.50 to 15.00
Railroad springs	17.50 to 18.00
Heavy axles and tire turnings	11.25 to 11.75
No. 1 locomotive tires	16.50 to 17.00
Per Net Ton	
Steel angle bars	13.50 to 14.00
Steel car axles	15.50 to 16.00
Iron car axles	24.00 to 24.50
Wrought iron bars and transoms	18.00 to 18.50
No. 1 railroad wrought	12.50 to 13.00
No. 2 railroad wrought	12.50 to 13.00
Cast iron borings	10.00 to 10.50
No. 1 busheling	11.00 to 11.50
No. 1 railroad cast	15.00 to 15.50
No. 1 machinery cast	17.50 to 18.00
Railroad malleable	12.75 to 13.25
Machine shop turnings	7.00 to 7.50
Champion bundled sheets	8.00 to 8.50

Birmingham

Featureless Week—Cast-Iron Pressure Pipe Makers Busy

BIRMINGHAM, May 12.—Very little selling, production fairly steady, delivery still good and weekly addition to the surplus stock tell the tale of the pig iron market. Furnace interests are holding to the $22 per ton, base, for No. 2 foundry and indicate that a deflection in the quotations would hardly bring about any activity. Consumers are apparently giving the market very little consideration, the larger melters of iron operating with a feeling of assurance of being able to get iron when they need it. Many one and two-car lots of iron are reported in this district. Further readjustments are about to be made and the inclination is toward a reduction of output. One interest mentions depression, the cast iron soil pipe and fittings manufacturers. The pressure pipe making plants are in full operation and are having iron delivered promptly. Many of the foundries and machine shops and other classes of shops are taking on small tonnages of iron from week to week. The deadlock between producers and consumers of pig iron holds out no promises of an early easing up. The surplus stocks of iron are as heavy as they were six months ago and a little longer.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$20.00
No. 1 foundry, 2.25 to 2.75 sil.	20.50
Basic	20.00
Charcoal, warm blast	30.00

Finished Steel.—Plants of the United States Steel Corporation subsidiaries are operating at near full capacity. The plant of the independent company, Gulf States Steel Co., is working around 65 per cent. Considerable steel is being shipped out and a little better feeling is noted. Rail exports left in the past week for West Africa. Soft steel bars are quoted, at Birmingham, 2.15c. to 2.25c.

Cast-Iron Pipe.—Lettings for cast-iron pressure pipe are noteworthy and the several plants in this district are operating at near capacity. The addition to the McWane Cast Iron Pipe Co. started up and now makes the daily capacity 20,000 ft. and the maximum size of pipe 8 in.

Coke.—No change has occurred in the coke market situation in the face of the shutting down of two blast furnaces recently. The quotations continue around $5 the ton for both by-product and bee-hive foundry coke. The Koppers Co. is seeking additional union brick masons for speeding up the by-product coking plant for the Republic Iron & Steel Co. The battery will have 57 ovens and plans are to get the work finished by November. Independent coke producers are finding a good market still for their output.

Old Material.—The market in the South continues quiet. Quotations remain low. Dealers are watching stocks.

We quote per gross ton, f.o.b. Birmingham, district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	13.00 to 14.00
Railroad wrought	12.00 to 13.00
Steel axles	17.00 to 18.00
Iron axles	18.00 to 19.00
Steel rails	13.00 to 14.00
No. 1 cast	16.50 to 17.00
Tramcar wheels	16.50 to 17.00
Car wheels	15.00 to 16.00
Stove plate	13.00 to 14.00
Machine shop turnings	7.00 to 8.00
Cast iron borings	8.00 to 9.00
Rails for rolling	16.50 to 17.00

The Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., is finding a market now for every ton of its basic slag fertilizer, a product which a few years ago was considered worthless. Tests have been made recently in behalf of the farmers, who have been buying more fertilizer this year than ever before. The Alabama Farm Bureau ordered 5000 tons of basic slag to fill orders from farmers and the bureau needs at least 1000 tons more.

Philadelphia

Plates at 1.90c. Base Pittsburgh—Interest in Pig Iron

PHILADELPHIA, May 12.—Eastern plate mills, in dropping their selling price to the basis of 1.90c., Pittsburgh, have furnished the only change of interest in the eastern Pennsylvania steel situation. All mills are now quoting this price on carload lots or more. In all steel products, business is in lighter volume than during April. Buying is of an extremely hand-to-mouth character.

There has been a ripple of interest in pig iron due to a fair amount of buying for the remainder of this quarter and for third quarter, but prices are weak and sellers believe it will take some time to correct the present lack of balance between production and consumption. While scrap remains almost stationary in price in this district, sales in the Pittsburgh district at an advance of about $1 a ton have created a firmer undertone in the Eastern market.

Pig Iron.—A few sales of fair-sized lots of foundry iron have been made in the past week or ten days and in most instances such business has been closed on the basis of $20.50 eastern Pennsylvania furnace for No. 2 plain. One or two furnaces are holding out for $21, base, for third quarter, but for shipment over the remainder of this quarter, it is easy to buy at $20.50 base. In the immediate Philadelphia district the competition is merely among furnaces of this district, but on inquiries emanating from the New England or New York districts the eastern Pennsylvania furnaces have had to meet low prices of Buffalo and western Pennsylvania furnaces. One of the latter quoted $19, furnace, on No. 1X iron for shipment to a point near New York. The only corrective for the pig iron market is, of course, decreased production and this is coming about slowly. The Delaware River Steel Co.'s furnace went in blast on Tuesday, replacing the Warwick furnace, which will be out by the end of the week. No other furnaces are scheduled to come in, but there is still a fair amount of iron on furnace yards, which will take a little time for consumers to absorb. Copper-bearing low-phosphorus iron has been sold at $26, furnace. There is no interest in basic iron.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rate varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$21.26 to $22.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	21.76 to 22.63
East. Pa. No. 1X	22.26 to 23.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	28.67 to 29.17
Virginia No. 2X, 2.25 to 2.75 sil.	29.17 to 29.67
Basic delivery eastern Pa.	21.00 to 21.50
Gray forge	21.50 to 22.00
Malleable	22.00 to 22.50
Standard low phos. (f.o.b. furnace)	24.00 to 25.00
Copper bearing low phos. (f.o.b. furnace)	25.00 to 26.00

Ferroalloys.—Resale ferromanganese seems to have disappeared from the market in the past week or two. At any rate no further sales have been reported and the price named by both domestic producers and importers, $115, furnace or seaboard, is fairly firm. There is no large buying, but a fair number of carload orders is being placed.

Billets.—Eastern Pennsylvania mills will quote $35.50, Pittsburgh, on rerolling billets with $5 extra for forging quality. Sales are few, the only one of importance being about 500 tons of special analysis billets to a Tacony manufacturer.

Plates.—One or two Eastern plate mills succeeded in getting in a fair amount of business by reducing the price a few days ago to 1.90c. per lb., Pittsburgh. The market had been very well held at 2c., Pittsburgh, for many weeks, but orders were getting scarcer and some sellers felt that something had to be done to stimulate demand. Taking the mills as a whole, there has been no stimulus in business.

Structural Steel.—The price situation on shapes continues very ragged. On the small lots which predominate in current buying, most mills are trying to get 2.10c., and usually are successful in getting at least 2c., Pittsburgh. This, of course, applies to less than carload lots. On carload lots 2c. is easily obtainable by buyers and on carload to hundred-ton lots 1.90c. or 1.95c., Pittsburgh, is occasionally quoted. Special concessions are being granted regularly, however, by certain mills on the more desirable tonnages. Such lots have commanded prices around 1.85c., Pittsburgh, and in one or two instances even less than 1.85c. has been done. The volume of buying has not increased and possibly is a little less than that of April.

Bars.—The effort of some mills to get 2.10c., Pittsburgh, on steel bars is not taken very seriously by buyers, even when such quotation applies to small lots. The reason for this is that there are sellers willing to take anything that looks like an order at 2c., Pittsburgh. Bids went in Tuesday on the new municipal stadium at League Island, which will require about 1500 tons of reinforcing bars.

Sheets.—The Alan Wood Iron & Steel Co., the principal producer of blue annealed sheets in the East, will start up its sheet mills next Monday, following a shutdown of three months due to a strike of sheet workers. Blue annealed sheets are in fair demand, but prices are weak, 2.40c. to 2.50c, Pittsburgh, being the usual range. Black sheets are not firm at 3.30c., and less than that figure has been quoted in some places. Galvanized are available at 4.30c. to 4.40c., Pittsburgh.

Warehouse Business.—Demand for steel out of stock continues fairly good. Prices are unchanged, for local delivery being as follows:

Soft steel bars and small shapes, 3.20c.; iron bars (except bands), 3.20c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel planished, 4.30c.; tank steel plates, ¼ in. and heavier, 3.10c.; tank steel plates, ⅛ in., 3.25c.; blue annealed steel sheets, No. 10 gage, 3.70c.; black sheets, No. 28 gage, 4.70c.; galvanized sheets, No. 28 gage, 5.85c.; square, twisted and deformed steel bars, 2.85c.; structural shapes, 3.10c.; diamond pattern plates, ¼-in., 5.30c.; ⅜-in., 5.50c.; spring steel, 5c.; rounds and hexagons, cold-rolled steel, 4.15c.; squares and flats, cold-rolled steel, 4.65c.; steel hoops, 4.20c. base; steel bands, No. 12 gage to ⅛ in., inclusive, 3.95c.; rails, 3.20c.; tool steel, 8.50c.; Norway iron, 7c.

Old Material.—The first sign of a better undertone in the scrap market came this week and was not due to any buying in this district, but to sales to consumers in the Pittsburgh district at an advance there of around $1 a ton. Some brokers are not inclined to take this advance too optimistically, as they point to the low operations of Eastern steel mills as an obstacle to any pronounced upward trend in scrap prices within the near future. On the other hand there is the fact that present prices are so low that less scrap is coming out, and if any mill should come into the market soon for a substantial tonnage, a higher price than now prevails might have to be paid. Taking into consideration the fact that scrap prices seldom register a sharp advance unless steel business is getting better, a moderate view of the course of prices in the immediate future seems to be the one most in favor.

We quote for delivery consuming points in this district as follows:

No. 1 heavy melting steel	$14.50 to $15.00
Scrap rails	14.50 to 15.00
Steel rails for rolling	16.50 to 17.00
No. 1 low phos. heavy 0.04 and under	20.00 to 21.00
Couplers and knuckles	18.50 to 19.00
Rolled steel wheels	18.50 to 19.00
Cast-iron car wheels	17.00 to 17.50
No. 1 railroad wrought	17.50 to 18.00
No. 1 yard wrought	16.50 to 17.00
No. 1 forge fire	14.00 to 14.50
Bundled sheets (for steel works)	12.00 to 12.50
Mixed borings and turnings (for blast furnace use)	11.50 to 12.00
Machine shop turnings (for steel works use)	12.00 to 12.50
Machine shop turnings (for rolling mill use)	12.50
Heavy axle turnings (or equivalent)	14.00 to 15.00
Cast borings (for steel works and rolling mill)	12.00 to 12.50
Cast borings (for chemical plants)	15.00 to 15.50
No. 1 cast	17.00 to 17.50
Heavy breakable cast (for steel plants)	15.50 to 16.00
Railroad grate bars	12.50 to 13.00
Stove plate (for steel plant use)	12.50 to 13.00
Wrought iron and soft steel pipes and tubes (new specifications)	14.50 to 15.00
Shafting	21.00 to 22.00
Steel axles	21.50 to 22.50

Imports.—Pig iron imports seem to be declining, last week's receipts consisting of only 1352 tons.

Cleveland

Improved Demand for Steel and Some Activity in Pig Iron

CLEVELAND, May 12.—The demand for finished steel improved somewhat the past week and sentiment is better among both producers and consumers. However, buying is still in small lots. Consumers are calling for quick deliveries, indicating that their stocks are low and that they are withholding orders until the material is needed. The automotive industry still leads in activities. Alloy steel makers have specifications to keep their plants operating at capacity for 30 days. Business with agricultural implement makers and manufacturers in some of the other metal working lines has improved.

The attempt of some of the mills to advance prices on some of the heavier products has resulted in the market's becoming firm at a minimum of 2c. on bars and structural shapes and some business is being taken at 2.10c. One leading independent mill has followed other producers in marking up structural material to 2.10c. Plates continue weak. While a few mills are asking 2.10c., at which some small lot sales are being made, quotations of 1.90c. are still coming out occasionally.

Ohio shops are figuring on an inquiry from the Norfolk & Western Railroad for car repair work requiring 12,000 tons of shapes and plates. A new Standard Oil inquiry has come out for 10 stills requiring 400 tons of plates. In the structural field new inquiry is light.

Iron Ore.—Lake Superior ore on docks May 1 amounted to 4,303,062 tons, or less on that date than any previous year since 1907, with the exception of 1916. The amount on docks May 1, 1924, was 4,798,572 tons. Receipts at Lake Erie ports in April were 865,449 tons. Shipments during the month were 1,559,411 tons, as compared with 1,328,891 tons in April last year. Few ore sales are being made. Some inquiries that came out for small lots a few weeks ago are still pending.

Pig Iron.—Considerable activity developed in the pig iron market during the week and the test that resulted from round lot inquiries brought out sharp concessions in prices, which are from 50c. to $1 a ton lower than a week ago. One seller at least seems disposed to go to whatever price is necessary to take business. One Lake producer has made sales at around $19, Valley furnace, for foundry iron and $19.50 has become a common quotation in the Valley district. In Cleveland, where there has been virtually no activity, one producer has marked the price down to $20 at furnace for local delivery, or a cut of $1 a ton. This price shuts $19 Valley iron out of Cleveland. In Michigan the market has declined 50c. a ton to $20, which is still the minimum quotation by some Lake furnaces. Sales by Cleveland interests during the week aggregated 35,000 to 40,000 tons, mostly in foundry iron, but including some lots of malleable, and a good volume of inquiry is still pending. The activity has been largely in western and southern Ohio, Michigan and Indiana. While there have been few sales in this immediate territory, several inquiries in lots up to 500 tons are pending in northern Ohio. The sales have been largely for the third quarter, but several lots were taken for the last half and these were booked at the same prices that are quoted for the third quarter. A Hamilton, Ohio, consumer bought 4800 tons of foundry iron. This is reported to have gone to a southern Ohio furnace. A Kokomo, Ind., foundry purchased 1000 tons of foundry iron from an Ohio furnace, a western Pennsylvania consumer 1500 tons from a Lake furnace and a Springfield consumer 1500 tons. An inquiry for 1500 tons of malleable iron is pending from a Columbus melter. There is no activity in basic iron and prices are untested. Low phosphorus iron has become rather active and is firm at $28.50, although the sale of 200 tons was made to a Detroit consumer at $29. A Cleveland foundry is inquiring for 500 tons. Ohio silvery iron is weak, with concessions up to $1.50 a ton from their regular schedule. The McKinney Steel Co. has blown in its No. 2 River furnace in Cleveland, which went out over a year ago to be rebuilt. The capacity of the new furnace is over 800 tons per day, as compared with the 500 ton capacity of the old stack.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6 from Birmingham:

Basic, Valley furnace, nominal..	$19.50
N'th'n No. 2 fdy., sil. 1.75 to 2.25.	$20.50 to 21.00
Southern fdy., sil. 1.75 to 2.25...	24.50 to 26.01
Malleable	20.50 to 21.00
Ohio silvery, 8 per cent.....	29.02 to 29.52
Standard low phos., Valley furnace	28.50

Semi-finished Steel.—Specifications on sheet bars are light and no new inquiries are coming out.

Strip Steel.—Narrow strip steel and hoops and bands are holding firmly at 2.40c., but there are reports that concessions of around $2 a ton from the 2.20c. price are being made to cold rolled strip mills for wide strip. Cold rolled strip continues irregular, with a range of 3.75c to 4c., Cleveland.

Sheets.—New demand for sheets shows some improvement, but consumers are buying only for early requirements. While no lower prices appeared during the week, minimum prices that recently were exceptional have become more common. Black sheets range from 3.20c. to 3.30c., blue annealed from 2.40c. to 2.50c., with the former more common and galvanized from 4.30c. to 4.40c., with the latter more general. Auto body sheets are firm at 4.40c.

Reinforcing Bars.—The Rivet Grip Steel Co., Cleveland, has taken a contract for 1300 tons of steel for the suspension bridge over the Delaware River at Philadelphia. The Bourne Fuller Co. has taken 350 tons for a telephone building for the Ohio Bell Telephone Co. in Toledo. Several bridges are pending in Dayton, requiring 800 tons. New billet steel reinforcing bars are quoted at 2.10c., Cleveland, for good lots and rail steel bars at 1.80c. to 1.90c., at mill.

Bolts, Nuts and Rivets.—With good specifications on contracts and some new business, the demand for bolts and nuts continues very satisfactory. Orders are heavy from the automotive industry, the demand from the implement manufacturers is better, and jobbers, who have kept pretty well out of the market for some time, are placing some car lot orders. The regular prices are holding well and makers report that they are able to get better prices than recently on special bolts for automobiles. Rivets are somewhat irregular and a $2 a ton concession from the 2.60c. price is being made. Small rivets are weak. On these a delivered price of 70, 10 and 5 per cent off list has been made.

Jobbers quote steel bars, 3.10c.; plates and structural shapes, 3.20c.; No. 28 black sheets, 4.25c.; No. 28 galvanized sheets, 5.35c.; No. 10 blue annealed sheets, 3.35c. to 3.50c.; cold-rolled rounds, 4c.; flats, squares and hexagons, 4.50c.; hoops and bands, 3.85c.; No. 9 annealed wire, $3.05 per 100 lb.; No. 9 galvanized wire, $3.50 per 100 lb.; common wire nails, $3.15 base per 100 lb.

Coke.—The market is dull, with prices unchanged at $4 to $5.50 for standard Connellsville foundry coke.

Old Material.—The market is somewhat more active and firmer on several grades. Heavy melting steel has advanced $1 a ton in the local market and blast furnace grades have been marked up 25c. a ton. A Cleveland mill during the week purchased 3000 to 4000 tons of heavy melting steel at $16.50 delivered. Local mills also purchased 8000 to 9000 tons of borings and turnings at $13 to $13.50 delivered. Some inquiry has come out in the Valley district.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel.....	$15.50 to $16.00
Rails for rolling.....	15.50 to 16.00
Rails under 3 ft.....	17.75 to 18.00
Low phosphorus melting.....	18.25 to 18.50
Cast iron borings.....	12.25 to 12.75
Machine shop turnings.....	12.25 to 12.75
Mixed borings and short turnings	12.25 to 12.75
Compressed sheet steel.....	13.00 to 13.50
Railroad wrought	12.00 to 12.25
Railroad malleable	17.25 to 17.50
Light bundled sheet stampings...	11.00 to 11.50
Steel axle turnings.....	14.25 to 14.75
No. 1 cast.....	17.00 to 17.50
No. 1 busheling.....	12.00 to 12.25
Drop forge flashings.....	11.00 to 11.50
Railroad grate bars.....	13.00 to 13.25
Stove plate	13.00 to 13.25
Pipes and flues.....	7.50 to 8.00

Possible Change in Rate Structure

Jones & Laughlin Decision and Eastern Class Rate Investigation May Lead to Removal of Finished Steel from Fifth Class

CHICAGO, May 11.—The principles established by the Interstate Commerce Commission in the Jones & Laughlin rate case may finally lead to taking finished iron and steel entirely out of the class rate structure throughout official classification territory. In offering a new mileage scale as a basis for rates to St. Louis, southern Illinois and the State of Indiana, the Commission gave recognition to competitive factors which affect iron and steel rate relationships and likewise to the conditions which dictate special treatment for the commodities in question, instead of a general application of fifth-class rates.

It is pointed out that generally it has been the policy of Central Freight Association territory lines to hold their rates on finished iron and steel to the fifth-class basis, in sharp contrast with conditions in the remainder of the country. Although the per car and per car-mile earnings for iron and steel are nearly three times as great as on all traffic, in the official classification the carriers have grouped them with many other commodities in a higher stage of manufacture, such as machinery, agricultural implements, stoves, paints, glassware, cereal beverages, canned goods, commercial oils and acids and cured meats. Trunk Line Association lines have generally established commodity rates on finished iron and steel, thus putting them on a lower basis than other fifth-class articles. In Western Classification, the rating on the iron and steel articles in question is fifth class, but commodity rates are general except in Western Trunk Line territory. In Southern Classification the rating is sixth class, but commodity rates move most of the business.

Rates Out of Line for Iron and Steel

That the fifth-class rates in Central Freight Association territory are out of line so far as they affect iron and steel is indicated also by the decision in the Consolidated Classification case, in which the Interstate Commerce Commission suggested greater refinement in the shape of a classification with at least 10 classes, which would permit carload traffic to be divided among a greater number of classes. The official classification lines have tentatively prepared such a classification, but have not promulgated it.

The new mileage scale set forth in the Jones & Laughlin case definitely takes the place of fifth-class rates in the western portion of Central Freight Association territory and may logically be expected to replace them in the remainder of that rate-making district. Furthermore, the Commission authorizes the grouping of origin and destination points in applying the mileage scale, provided the rates from and to each of such groups, and in the aggregate, average substantially the same as if made from and to each point separately. Grouping recognizes the competitive conditions which have such an important bearing on movement of iron and steel commodities.

In fact, one great objection to class rates on iron and steel is that they necessitate fixing rates to and from every freight station. If finished iron and steel were taken out of fifth class entirely, and were put on a straight commodity basis, it would greatly simplify the problem, as only a relatively few producing points would have to be related to one another. That this may be the ultimate outcome of the question is suggested by the progress of the Eastern Class Rate Investigation.

Short and Long Haul Ruling

This proceeding is the result of complications which have arisen under Section 4 of the Transportation Act of 1920, which prohibits fixing higher rates at intermediate points than at the termini of long hauls, except upon special authority of the Interstate Commerce Commission. Applications to the Commission for Fourth Section relief have been so numerous that it proved necessary to grant temporary blanket relief, pending a final settlement of all the issues raised. Such a complicated situation was created that the Commission invited the carriers, shippers and others to participate in a general investigation of class rates in and between the various territories in official classification. The next hearing in this investigation will be held at Washington on June 15, and subsequently there will be hearings at Chicago, and possibly at Boston.

There is no doubt that the class rate structure has been distorted because of competitive influences exerted by a relatively few iron and steel producing points, and it is a question whether the problem can be solved without taking finished iron and steel out of fifth class and giving them separate treatment on a commodity rate basis. The new rates which have been suggested by the carriers in the investigation case are built up upon the iron and steel rate of 34c. from Pittsburgh to New York, and this has raised a storm of protest from shippers. Before the issues raised have been settled in this case, and possibly before the mileage scale set forth in the Jones & Laughlin case has been applied, it is possible that a fundamental readjustment of rate relationships, so far as they affect iron and steel, will get well under way.

Meanwhile executives of western mills are not disposed to draw definite conclusions as to the results of the Jones & Laughlin decision. It is entirely too early to state that it will further localize the business of Chicago mills or that it will tend to offset the abandonment of Pittsburgh plus in the territory affected by the case.

Little Interest in Water Shipment

Interest in water transportation cannot be described as keen. Mills are skeptical regarding the reported economies of shipping by barge or by Lake boat. Such shipments cannot be made unless large tonnages are loaded; this implies obtaining orders for quantities that customers rarely buy, or the establishment of warehouses at the end of the water routes for final distribution of the material. Furthermore, water shipments are clearly economical only where rail movements at the loading and delivery points can be kept down to a minimum, and the water haul is long enough to build up a substantial saving under the all-rail freight. Thus the loading of grain direct from elevators at the head of the Lakes and its shipment to Buffalo, where it is again directly unloaded from boats to elevators, has proved a success. On the other hand, it is pointed out that, while finished iron and steel might be shipped from Chicago to Detroit at as low as $2 a ton for the Lake boat haul, this charge does not include extra transportation charges. Loading and unloading at either end would total at least $1.50 a ton, while rail switching would aggregate at least 50c., which would bring the total cost of shipment from mill to consignee up to a minimum of $4 a ton.

The Kansas City Bolt & Nut Co., Kansas City, Mo., rolled its first sheets on April 1. The first unit of a sheet plant, which will ultimately embrace eight mills, was recently completed.

FABRICATED STEEL

Orders for 34,000 Tons and Fresh Inquiries for About 15,000 Tons

Structural awards at over 34,000 tons reported for the week are close to the weekly average of the year to date. The largest item is 6000 tons for a St. Louis theater. Fresh inquiries total about 15,000 tons of which 4500 tons is for another section of the New York subway under Central Park West. Awards include the following:

Loft building, 214-226 West Twenty-ninth Street, New York, 2000 tons, to Hedden Iron Construction Co.

Lefcourt Building, 16 East Thirty-fourth Street, New York, 3000 tons, to Harris Structural Steel Co.

Silk Center Building, Fourth Avenue and Thirty-first Street, New York, 1700 tons, to Hay Foundry & Iron Works.

Loft building, 245 West Twenty-seventh Street, New York, reported last week as having been awarded to an unnamed fabricator, went to the Hinkle Iron Works.

Theater, Jamaica, Long Island, 600 tons, to Harris Structural Steel Co.

Loft building, West Thirtieth Street, New York, 850 tons, to A. E. Norton, Inc.

Gold Dust Corporation, Baltimore, 500 tons, to Dietrich Brothers.

W. & J. Sloane, New York, linoleum plant at Trenton, N. J., 2500 tons, to American Bridge Co.

Title Guarantee & Trust Co., building on Staten Island, New York, 200 tons, to McClintic-Marshall Co.

New York Central Railroad, bridge at New Carlisle, Ind., 160 tons, to Fort Pitt Bridge Works.

Cincinnati *Times-Star*, garage, 120 tons, to L. Schreiber & Sons Co.

Kroger Grocery & Baking Co., Cincinnati, warehouse, 125 tons, to General Iron Works.

Ambassador Theater, St. Louis, 6000 tons, to Mississippi Valley Structural Steel Co.

State Capitol, addition, Lincoln, Neb., 3000 tons, to Omaha Steel Works.

Gas holder, Altoona, Pa., 200 tons, to Stacey Gas Construction Co.

Amarillo, Tex., oil storage tank, 200 tons, to Kansas City Structural Steel Co.

Building at Chihuahua, Mex., 250 tons, to Kansas City Structural Steel Co.

Detroit Rock Salt Co., Wayne County, Mich., breaker building, 150 tons, to a Pittsburgh district fabricator.

Singer Building, Chicago, 465 tons, to American Bridge Co.

Medinah Country Club, Medinah, Ill., 357 tons, to Vierling Steel Works.

American National Bank, Wausau, Wis., bank and office building, 347 tons, to Wausau Iron Works.

Sears, Roebuck & Co., warehouse, Kansas City, Mo., 300 tons, to A. Goldberg & Son, Kansas City.

Utah Light & Power Co., Whellon, Utah, penstock job, 1300 tons of shapes and 1200 tons of plates, to an Eastern mill.

Nevada State Highway Commission, Carson City, Nev., three Washoe County bridges, 100 tons, to McClintic-Marshall Co.

Hotel Heywood addition, Los Angeles, 500 tons, to Baker Iron Works.

Los Angeles Gas Co., two gas holders, Los Angeles, 460 tons, to Western Pipe & Steel Co.

Vancouver, B. C., pipe line, 6000 tons, Vancouver Engineering Works, low bidder.

General Petroleum Co., San Francisco, two barges, 350 tons, Pacific Coast Engineering Co., low bidder.

Elyria Iron & Steel Co., Cleveland, factory buildings, 450 tons, to Jones & Laughlin Steel Corporation.

Monongahela Railroad, machine shop at Brownsville, Pa., 215 tons, to Jones & Laughlin Steel Corporation.

Atlas China Co., Niles, Ohio, factory, 100 tons, to Pittsburgh Bridge & Iron Co.

Garage, Bradford, Pa., 200 tons, to Jones & Laughlin Steel Corporation.

Dupont Engineering Co., Charleston, W. Va., ammonia building, 250 tons, to McClintic-Marshall Co.

Fisher Body Co., Detroit, crane runway, 150 tons, to McClintic-Marshall Co.

Mountain States Gas Co., Olympia, Wash., gas sphere, 100 tons, to Chicago Bridge & Iron Works.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Department of Plant and Structures, city of New York, destructor plant to be erected at Stanton Street and East River, 500 tons.

Library building, Bridgeport, Conn., 300 tons.

Chesapeake & Ohio Railroad, car shops at Russell, Ky., 700 tons.

New York Central Railroad, miscellaneous bridge repairs, 1400 tons.

Weave shed at Providence, R. I., 200 tons.

General Electric Co., addition to Philadelphia plant, 1000 tons.

City of New York, another section of subway under Central Park West, 4500 tons.

City of New York, alterations and additions to Queens borough subway, 300 tons.

New York State bridge at Poughkeepsie, N. Y., 1200 tons for east approach and anchorage piers.

Hospital, Paterson, N. J., 400 tons.

Lowe apartments, Dayton, Ohio, 500 tons.

Mount Sinai Hospital, Cleveland, additions, 500 tons.

Two public schools, Chicago, 500 tons.

Bridge, Eldorado, Kan., 300 tons.

Milwaukee, Holton Street viaduct, 1000 tons; plans submitted to Common Council for approval May 11, Manuel Cutler, superintendent bridges and buildings.

Chelan Reclamation District, pipe line, Mason, Wash., 400 tons.

Illinois Central, viaduct, Riverdale, Ill., 380 tons.

South Water Street double decking, section 2, Chicago, 250 tons, general contract awarded to Underground Construction Co.

Viscose Co., Roanoke, Va., manufacturing plant, 800 tons.

Auditorium, Minneapolis, 3600 tons; low bidder on general contract, National Contracting Co., Minneapolis.

Municipal stadium, League Island, Philadelphia, 200 tons.

RAILROAD EQUIPMENT

Car Orders Total 5650—Only 6 Locomotives Placed

The bulk of car orders for the week is 5500 freight cars for the St. Paul out of a total of 5650. In addition, 1935 car bodies were placed. The six locomotives ordered are for Japan. Among the items are:

The Chicago, Milwaukee & St. Paul has placed orders for 5500 freight cars and will probably buy 1000 more this week. The orders were divided as follows: Pressed Steel Car Co., 1000 box cars; Bettendorf Co., 1000 box cars; Pullman Car & Mfg. Corporation, 1000 box cars; American Car & Foundry Co. and General American Car Corporation, 500 automobile cars each; Illinois Car & Mfg. Co., 500 stock cars; Standard Steel Car Co., 1000 stock cars. The cars which probably will be bought this week are 500 gondolas and 500 flat cars and the same road will soon enter the market for 500 additional automobile cars. It is also inquiring for repairs on 1000 stock cars.

The Chesapeake & Ohio Railroad may release inquiries for about 20,000 freight cars if the decision of the Interstate Commerce Commission in the present merger plan is considered favorable. This decision is expected in about 10 days.

The Illinois Traction Co. has ordered 50 composite hopper cars from the Mount Vernon Car Mfg. Co.

The New York Central has ordered 10 combination mail and baggage cars from the American Car & Foundry Co.

The Standard Oil Co. of Indiana has ordered 100 mine cars from the American Car & Foundry Co.

The Southern Pacific has ordered 5 steel coach and baggage cars from the American Car & Foundry Co.

The Chicago & Alton will rebuild 400 box cars in its own shops.

The Norfolk & Western has placed an order for 1935 hopper car bodies, 1000 with the American Car & Foundry Co. and 935 with the Ralston Steel Car Co.

The American Locomotive Co. has received an order from the Imperial Government Railways of Japan for 6 Pacific type superheater locomotives weighing 192,000 lb. These will be the most powerful passenger locomotives in service in Japan.

The Soo Line has ordered 42 underframes for caboose cars from the Siems-Stembel Co.

The Michigan Central has awarded the conversion of 300 box into flat cars to the Illinois Car & Mfg. Co.

The New York Rapid Transit Co. has placed two steel frame crane car bodies with the Differential Steel Car Co., Findlay, Ohio.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
May	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
6.....	13.62½	13.37½	53.87½	7.80	7.45	7.27½	6.92½
7.....	13.62½	13.25	53.87½	7.85	7.50	7.25	6.90
8.....	13.62½	13.25	53.80	7.87½	7.55	7.22½	6.87½
9.....	13.62½	13.25	....	7.87½	7.55	7.25	6.90
11.....	13.62½	13.37½	54.50	7.95	7.60	7.30	6.95
12.....	13.62½	13.37½	54.50	7.97½	7.62½	7.32½	6.97½

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, May 12.

None of the markets is particularly active but prices are firm to higher. Buying of copper is moderate but the tone is better. Straits tin has not been actively bought but prices have remained steady. Lead has worked higher on good consumptive demand. The zinc market is quiet but a little higher.

Copper.—The electrolytic copper market has been very quiet and more or less under the influence of London quotations. It got back to 13.50c., delivered, late last week, as offered by some sellers, but since then has turned stronger and today is well established at 13.62½c. to 13.75c., delivered, where it was a week ago. There is more interest on the part of consumers, there being one inquiry for 1000 tons and another for 500. An encouraging feature is that some of the inquiries are for May-June shipment, indicating that some melters are not as fully covered as had been suspected. The export business is fairly good, with business done at 13.60c., f.a.s. The Lake copper market is quiet, with quotations ranging from 13.62½c. to 13.75c., delivered.

Tin.—While the Straits tin market has been stagnant on the surface, there have been fair sales consummated. The total for the week has been between 800 and 1000 tons. Because there have been fewer sellers than usual the tone has been firmer. A feature has been the light demand for spot delivery. Consumers in general have not been active buyers and on each day, as soon as the shorts covered their requirements, the market turned quiet. Yesterday there were light sales and today the market has been very dull, with spot Straits tin at 54.50c., New York. The London market today was only a little higher than a week ago with spot standard quoted at £242 15s., future standard at £244 15s. and spot Straits at £248 5s. The Singapore price yesterday was £250. Thus far this month 1950 tons has arrived, with 5585 tons reported afloat.

Lead.—Due to fair buying the market has developed considerable firmness. On some days there was considerable activity, while on others pronounced quietness prevailed. Most sellers are well booked and some of them cannot ship any prompt lead, for which a premium is asked in most cases by those who have some prompt lead still left. The leading producer still maintains its contract price at 7.75c., New York, but quotations in the outside market are 7.60c. to 7.65c., St. Louis, or 7.95c. to 8c., New York.

Zinc.—Statistics of the American Zinc Institute issued this week show a smaller increase in stocks than was expected for April, or only 1141 tons. Production was also less than the previous month and shipments for export exceeded March. Partly because of this and also because of fair export sales, quotations are higher at 6.95c. to 7c., St. Louis, or 7.30c. to 7.35c., New York. Domestic demand is a little better, but still of small proportions.

Nickel.—Wholesale lots of shot and ingot nickel are quoted at 31c. to 32c. per lb. and electrolytic nickel at 38c.

Antimony.—Because of a marked scarcity of spot and early delivery metal, wholesale lots of Chinese antimony have advanced sharply during the week to 17.50c., New York, duty paid. One dealer reports the sale of 350 tons the past week.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., delivered.

Old Metals.—The market is quiet with practically no change in values. Dealers' selling prices are as follows in cents per lb.:

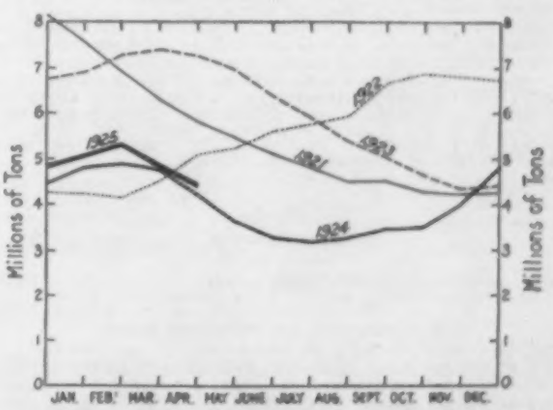
Copper, heavy and crucible	12.75
Copper, heavy and wire	12.00
Copper, light and bottoms	10.50
Heavy machine composition	10.00
Brass, heavy	8.00
Brass, light	6.75
No. 1 red brass or composition turnings	9.00
No. 1 yellow rod brass turnings	8.75
Lead, heavy	7.00
Lead, tea	5.50
Zinc	4.50
Cast aluminum	19.00
Sheet aluminum	19.00

Chicago

May 12.—Copper has declined and all of the other metals have advanced. Antimony has gone up 4c. a pound. There is a shortage of this metal and available supplies are held in very close hands. Demand for metals is in good volume, although most buying is confined to current needs. Among the old metals prices are unchanged except for an advance in grades of tin. We quote, in carload lots: Lake copper, 13.87½c.; tin, 55.75c.; lead, 7.70c.; zinc, 7c.; in less than carload lots, antimony, 19c. On old metals we quote copper wire, crucible shapes and copper clips, 10.50c.; copper bottoms, 9.25c.; red brass, 8.25c.; yellow brass, 7.25c; lead pipe, 6.25c.; zinc, 4c.; pewter, No. 1, 28c.; tin foil, 35c.; block tin, 42c.; all buying prices for less than carload lots.

Large Decrease in Steel Corporation's Unfilled Orders

Unfilled orders on the books of the United States Steel Corporation as of April 30 aggregated 4,446,568 tons—a decrease of 416,996 tons from those which remained unfilled on March 31. It compares with a decrease in March of 421,207 tons which was the first decline since last July. A year ago the unfilled business was 4,208,447 tons or 238,121 tons less than for April 30, this year. Following is the unfilled tonnage as reported by months beginning with January, 1923:



United States Steel Corporation Unfilled Orders

	1925	1924	1923
Jan. 31.....	5,037,323	4,798,429	6,910,776
Feb. 28.....	5,284,771	4,912,901	7,283,989
March 31.....	4,863,564	4,782,867	7,403,232
April 30.....	4,446,568	4,208,447	7,288,509
May 31.....	.....	3,628,089	6,981,351
June 30.....	.....	3,262,505	6,384,261
July 31.....	.....	3,187,073	5,910,763
Aug. 31.....	.....	3,289,577	5,414,663
Sept. 30.....	.....	3,473,780	5,035,750
Oct. 31.....	.....	3,525,270	4,672,825
Nov. 30.....	.....	4,031,969	4,368,554
Dec. 31.....	.....	4,816,676	4,446,339

The high record in unfilled orders was 12,180,000 at the close of April, 1917.

Prices of Finished Iron and Steel Products (Carload Lots)

Tank Plates

F.o.b. Pittsburgh mill, base, per lb.....2c. to 2.10c.
F.o.b. Chicago, base, per lb.....2.20c.

Structural Shapes

F.o.b. Pittsburgh mills, base, per lb.....2c. to 2.10c.
F.o.b. Chicago, base, per lb.....2.20c.

Iron and Steel Bars

Soft steel bars f.o.b. P'gh mills, base, per lb.....2c. to 2.10c.
Soft steel bars f.o.b. Chicago, base, per lb.....2.10c. to 2.20c.
Reinforcing steel bars f.o.b. P'gh mills, base, per lb., 2.00c. to 2.10c.
Rail steel bars, f.o.b. Chicago district mills, base, per lb..2.10c.
Common iron bars, f.o.b. Chicago, base, per lb.....2.10c.
Refined iron bars, f.o.b. P'gh mills, base, per lb.....3.00c.
Common iron bars, eastern Pa. mill, base, per lb.....2.10c.

Hot-Rolled Flats

Hoops, base, per lb., Pittsburgh.....2.40c.
Bands, base, per lb., Pittsburgh.....2.40c.
Strips, 6 in. and narrower, base, per lb., Pittsburgh.....2.40c.
Strips, 6 to 12-in., base, per lb., Pittsburgh.....2.20c.
Strips, 6 in. and narrower, Chicago.....2.50c.
Strips, wider than 6 in., Chicago.....2.40c.

Cold-Finished Steel

Screw stock and shafting, f.o.b. P'gh mills, base, per lb..2.70c.
Screw stock and shafting, f.o.b. Chicago, base, per lb., 2.70c. to 2.80c.
Screw stock, base, per lb., Cleveland.....2.75c.
Shafting, ground, f.o.b. mill, base, per lb.....3.10c.
Strips, f.o.b. P'gh mills, base, per lb.....4c.
Strips, f.o.b. Cleveland mills, base, per lb.....3.75c. to 4c.
Strips, f.o.b. delivered Chicago, base, per lb....4.05c. to 4.30c.
Strips, f.o.b. Worcester mills, base, per lb.....4.15c.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

Nails, base, per keg.....$2.75
Galvanized nails, 1-in. and longer, base plus..... 2.25
Galvanized nails, shorter than 1 in., base plus..... 2.50
Bright plain wire, base, No. 9 gage, per 100 lb..... 2.50
Annealed fence wire, base, per 100 lb..... 2.65
Spring wire, base, per 100 lb..... 3.50
Galvanized wire, No. 9, base, per 100 lb..... 3.10
Galvanized barbed, base, per 100 lb..... 3.45
Galvanized staples, base, per keg..... 3.45
Painted barbed wire, base, per 100 lb..... 3.20
Polished staples, base, per keg..... 3.20
Cement coated nails, base, per count keg..... 2.10
*Bale ties, carloads, to jobbers....75, 15 and 5 per cent off list
*Bale ties, carloads, to retailers...75, 10 and 6 per cent off list
Woven wire fence, base, per net ton to retailers.....$65.00

Chicago district mill prices are $2 per ton above the foregoing and Chicago delivered prices are $3 per ton above the prices f.o.b. Cleveland and Pittsburgh. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant, and Duluth, Minn., mills $2 a ton higher; Anderson, Ind., $1 higher.

*F.o.b. Cleveland.

Sheets

Blue Annealed

(base) per lb.

Nos. 9 and 10, f.o.b. Pittsburgh.....2.40c. to 2.50c.
Nos. 9 and 10 (base) per lb., f.o.b. Chicago dist. mills, 2.50c. to 2.55c.

Box Annealed, One Pass Cold Rolled

No. 28 (base) per lb., f.o.b. Pittsburgh.....3.20c. to 3.40c.
No. 28 (Base) per lb., f.o.b. Chicago dist. mill..3.40c. to 3.45c.

Galvanized

No. 28 (base) per lb., f.o.b. Pittsburgh.....4.30c. to 4.50c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill..4.50c. to 4.55c.

Tin-Mill Black Plate

No. 28 (base) per lb., f.o.b. Pittsburgh.....3.30c. to 3.40c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill..3.50c. to 3.60c.

Automobile Body Sheets

No. 22 (base) per lb., f.o.b. Pittsburgh.....4.40c.

Long Ternes

No. 28 (base) 8-lb. coating, per lb., f.o.b. mill..4.75c. to 4.90c.

Tin Plate

Standard cokes, per base box, f.o.b. Pittsburgh district mills.....$5.50
Standard cokes, per base box f.o.b. Chicago district mills 5.60
Standard cokes, per base box f.o.b. Elwood, Ind..... 5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)
(Per Package, 20 x 28 in.)

8-lb. coating, 100 lb. base.....$11.20	20-lb. coating I. C....$15.50
8-lb. coating I. C.... 11.50	25-lb. coating I. C.... 17.00
15-lb. coating I. C.... 14.35	30-lb. coating I. C.... 18.35
	40-lb. coating I. C.... 20.35

Rivets

Large, f.o.b. P'gh and Cleveland mills, base, per 100 lb., $2.50 to $2.60
Large, f.o.b. Chicago, base, per 100 lb..... 2.75
Small, f.o.b. Pittsburgh.....70, 10, 5 per cent off list
Small, Cleveland .....70 and 10 to 70, 10 and 5 per cent off list
Small, Chicago .....70 and 10 per cent off list

Rails and Track Equipment

(F.o.b.)

Rails, standard, per gross ton.....$43.00
Rails, light, billet, base, per lb.....1.75c. to 1.80c.
Rails, light rail steel, base, per lb.....1.65c. to 1.75c.
Spikes, 5/16 in. and larger, base, per 100 lb.....$2.80 to $3.10
Spikes, ½ in. and smaller, base, per 100 lb..... 3.10 to 3.40
Spikes, boat and barge, base, per 100 lb..... 3.25
Track bolts, all sizes, base, per 100 lb..... 3.90 to 4.25
Tie plates, per 100 lb..... 2.35 to 2.40
Angle bars, base, per 100 lb..... 2.75

Welded Pipe

(F.o.b. Pittsburgh district mills)

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	¼ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	13
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	2 to 3	61	50½
¼ to ⅜	47	30½	¼ to ⅜	+11	+54
½	53	42½	½	21	7
¾	58	47½	¾	28	12
1 to 1½	60	49½	1 to 1½	30	14

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased (on black) by one point, with supplementary discount of 5 per cent and (on galvanized) by 1½ points, with supplementary discount of 5 per cent. On iron pipe, both black and galvanized, the preferentials to large jobbers are 1, 5 and 2½ per cent beyond the above discount.

NOTE—The above discounts on steel pipe also apply at Lorain, Ohio. Chicago district mills have a base 2 points less. Chicago delivered base 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point having the lowest rate to destination.

Boiler Tubes

(F.o.b. Pittsburgh)

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1⅝ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 fives extra are given on lap welded steel tubes and 2 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ and 1½ in.	52	3¼ to 3½ in.	47
1¾ in.	36	4 in.	50
2 and 2¼ in.	31	4½, 5 and 6 in.	45
2½ and 2¾ in.	39		

Hot-Rolled

2 and 2¼ in.	34	3¼ and 3½ in.	50
2½ and 2¾ in.	42	4 in.	53
3 in.	48	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30 base.....85 to 87 per cent off list
Carbon 0.30 to 0.40 base.....83 to 85 per cent off list
Plus usual differentials and extra for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

	Cents per Ft.		Cents per Ft.
2-in. O.D. 12 gage....	14¼	2¼-in. O.D. 10 gage..	18
2-in. O.D. 11 gage....	15	3-in. O.D. 7 gage.....	33
2-in. O.D. 10 gage....	16	1½-in. O.D. 9 gage...	15
2⅛-in. O.D. 12 gage..	16	5⅝-in. O.D. 9 gage...	50
2⅛-in. O.D. 11 gage..	17	5½-in. O.D. 9 gage...	52

Prices of Iron and Steel Products and Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 51.50 per cent iron	$4.55
Old range non-Bessemer, 51½ per cent iron	4.40
Mesaba Bessemer, 51.50 per cent iron	4.40
Mesaba non-Bessemer, 51.50 per cent iron	4.25
High phosphorus iron, 51.50 per cent	4.15

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66 per cent iron	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus	44c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, high grade, per unit, in 60 per cent concentrates	$9.00 to $11.00
Chrome ore, Indian basic, 48 per cent Cr_2O_3, crude, per ton, c.i.f., Atlantic seaboard	22.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS_2, New York	80c.

Coke and Coal

(Per Net Ton)

Furnace coke, f.o.b. Connellsville prompt	$3.00 to $3.15
Foundry coke, f.o.b. Connellsville prompt	4.00 to 4.50
Mine run steam coal, f.o.b. W. Pa. mines	1.50 to 2.00
Mine run coking coal, f.o.b. W. Pa. mines	1.50 to 1.75
Mine run gas coal, f.o.b. W. Pa. mines	2.00 to 2.25
Steam slack, f.o.b. W. Pa. mines	1.45 to 1.50
Gas slack, f.o.b. W. Pa. mines	1.50 to 1.60

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton	$115.00
Ferromanganese, foreign, 80 per cent, f.o.b. Atlantic port, duty paid	115.00
Ferrosilicon, 50 per cent, delivered	$82.50 to 85.00
Ferrosilicon, 75 per cent	145.00 to 147.50
Ferrotungsten, per lb. contained metal	90c. to 95c.
Ferrochromium, 4 per cent carbon and up, 60 to 70 per cent Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium	$3.50 to $4.00
Ferrocarbontitanium, 15 to 18 per cent, per net ton	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated)

Spiegeleisen, domestic, 19 to 21 per cent.....$33.00
Spiegeleisen, domestic, 16 to 19 per cent..... 32.00
Ferrosilicon, Bessemer, 10 per cent, $35.50; 11 per cent, $38; 12 per cent, $40.50; electric furnace ferrosilicon, 10 per cent, $38; furnace with an advance of $1 per unit for material above 10 per cent.
Silvery iron, 6 per cent, $24; 7 per cent, $25; 8 per cent, $26.50; 9 per cent, $28.50; 10 per cent, $30.50; 11 per cent, $33; 12 per cent, $35.50.

Fluxes and Refractories

Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton, f.o.b. Illinois and Kentucky mines	18.50
Fluorspar, foreign, 85 per cent calcium fluoride, not over 5 per cent silica, c.i.f. Philadelphia, duty paid, per net ton	18.00
Fluorspar, No. 1 ground bulk, 95 to 98 per cent calcium fluoride, not over 2½ per cent silica, per net ton, f.o.b. Illinois and Kentucky mines	32.50
Fluorspar, acid lump, 98 per cent plus calcium fluoride, not over 1 per cent silica, per net ton, f.o.b. Illinois and Kentucky mines	35.00
Fluorspar, foreign, 85 per cent calcium fluoride, not over 5 per cent silica, c.i.f. Philadelphia, duty paid, per net ton	18.00

Per 1000 f.o.b. works:

Fire Clay	High Duty	Moderate Duty
Pennsylvania	$43.00 to $46.00	$40.00 to $43.00
Maryland	48.00 to 50.00	43.00 to 45.00
Ohio	43.00 to 46.00	40.00 to 43.00
Kentucky	43.00 to 45.00	40.00 to 43.00
Illinois	43.00 to 45.00	40.00 to 43.00
Missouri	45.00 to 48.00	38.00 to 43.00
Ground fire clay, per ton		6.50 to 7.50
Silica Brick:		
Pennsylvania		40.00
Chicago		49.00
Birmingham		54.00
Silica clay, per ton		8.00 to 9.00
Magnesite Brick:		
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.)		65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.)		40.00
Chrome Brick:		
Standard size, per net ton		48.00

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland and Chicago)

Machine bolts, small rolled threads..60 and 10 per cent off list
Machine bolts, all sizes, cut threads, 50, 10 and 10 per cent off list
Carriage bolts, smaller and shorter, rolled threads, 50, 10 and 10 per cent off list
Carriage bolts, cut threads, all sizes..50 and 10 per cent off list
Eagle carriage bolts.....65 and 10 per cent off list
Lag bolts .....60, 10 and 10 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads....50 and 10 per cent off list
Other style heads.....20 per cent extra
Machine bolts, c.p.c. and t. nuts, ⅝ x 4 in., 45, 10 and 5 per cent off list
Larger and longer sizes.....45, 10 and 5 per cent off list
Hot-pressed nuts, blank or tapped, square.....4c. off list
Hot-pressed nuts, blank or tapped, hexagons.....4.40c. off list
C.p.c. and t. square or hex. nuts, blank or tapped..4.10c. off list
Bolt ends with hot pressed nuts..50, 10 and 10 per cent off list
Bolt ends with cold pressed nuts...45, 10 and 5 per cent off list
Washers*.....6c. to 5.50c. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent less than above for less than car lots. On hot pressed and cold punched nuts the discount is 25c. less per 100 lb. than quoted above for less than car lots.

(Quoted with freight allowed within zone limits)

Semi-finished hex. nuts:
⅞ in. and smaller, U. S. S.....80, 10 and 5 per cent off list
⅞ in. and larger, U. S. S.....75, 10 and 5 per cent off list
Small sizes, S. A. E.....80, 10, 10 and 5 per cent off list
S. A. E., ⅞ in. and larger....75, 10, 10 and 5 per cent off list
Stove bolts in packages.....80 and 5 per cent off list
Stove bolts in bulk.....80 and 5 and 2½ per cent off list
Tire bolts .....50, 10 and 5 per cent off list

Semi-Finished Castellated and Slotted Nuts

(Prices delivered within specified territories)

(To jobbers and consumers in large quantities)

	Per 100 Net S. A. E.	Per 100 Net U. S. S.		Per 100 Net S. A. E.	Per 100 Net U. S. S.
¼-in.	$0.44	$0.44	⅞-in.	$2.35	$2.40
5/16-in.	.515	.515	1-in.	3.60	3.60
⅜-in.	.62	.66	1-in.	5.55	5.80
7/16-in.	.79	.90	1⅛-in.	8.90	8.90
½-in.	1.01	1.05	1¼-in.	12.60	13.10
9/16-in.	1.38	1.42	1⅜-in.	18.35	18.35
⅝-in.	1.70	1.73	1½-in.	21.00	21.00

Larger sizes—Prices on application.

Cap and Set Screws

(Freight allowed within zone limits)

Milled cap screws.....80, 10 and 5 per cent off list
Milled standard set screws, case hardened, 80 and 10 per cent off list
Milled headless set screws, cut thread..80 and 10 per cent off list
Upset hex. head cap screws, U. S. S. thread, 80, 10, 10 and 5 per cent off list
Upset hex. cap screws, S. A. E. thread, 80, 10, 10 and 5 per cent off list
Upset set screws.....80, 10 and 10 per cent off list
Milled studs .....75 per cent off list

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over	$35.50
Forging billets, ordinary carbons	40.50
Forging billets, guaranteed analysis	45.50
Sheet bars	37.00
Slabs	35.50
*Wire rods, common soft, base, No. 5 to ⅜-in.	46.00
Wire rods, common soft, coarser than ⅜-in.	$2.50 over base
Wire rods, screw stock	$5.00 per ton over base
Wire rods, carbon 0.20 to 0.40	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75	7.50 per ton over base
Wire rods, carbon over 0.75	10.00 per ton over base
Wire rods, acid	15.00 per ton over base
Skelp, grooved, per lb.	2c. to 2.10c.
Skelp, sheared, per lb.	2c. to 2.10c.
Skelp, universal, per lb.	2c. to 2.10c.

*Chicago mill base is $50. Cleveland mill base, $46.

Alloy Steel

(F.o.b. Pittsburgh or mill)

S. A. E. Series Numbers	Bars 100 lb.
2100*(1½% Nickel, 10 to 20 per cent Carbon)	$3.00 to $3.25
2300 (3½% Nickel)	4.50 to 4.75
2500 (5% Nickel)	6.00 to 6.25
3100 (Nickel Chromium)	2.50 to 2.65
3200 (Nickel Chromium)	5.50
3300 (Nickel Chromium)	7.50 to 7.75
3400 (Nickel Chromium)	6.50 to 6.75
5100 (Chromium Steel)	3.50
5200*(Chromium Steel)	7.50 to 8.00
6100 (Chromium Vanadium bars)	4.25 to 4.50
6100 (Chromium Vanadium spring steel)	4.00 to 4.25
9250 (Silicon Manganese spring steel)	3.50
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanadium)	4.25 to 4.50
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium)	4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum)	4.25
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	3.75
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.20—0.50 Molybdenum)	4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for coal drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10-in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4-in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

PERSONAL

William Wuthenow, heretofore manager of Western plants of the Republic Iron & Steel Co., at Chicago, has become president of the Republic Rolling Mill Corporation, which will operate the bar iron mill at East Chicago, Ind., recently sold by the Republic Iron & Steel Co. Production will start about June 1. Mr. Wuthenow has been identified with rolling mills for 40 years, for the past 25 years with the Republic Iron & Steel Co. Born at Vicksburg, Miss., he started his career as a water boy at the South Chicago plant of the North Chicago Rolling Mill Co., which was later acquired by the Illinois Steel Co. He held various positions with that organization, including steel mill office tonnage clerk, chief weigh master and extra engineer. In 1893 he went to the Colorado Fuel & Iron Co. at Pueblo, Colo., where he worked at the machinist's trade. Subsequently he returned to the Illinois Steel Co. in the capacity of engineer, operating a 3000-hp. plate mill engine. In 1899 he entered the service of the Republic Iron & Steel Co. at Chicago as auditor of costs. Later he was transferred to the operating department as an efficiency man under Charles Hart, general manager. In that capacity, he visited all the company's plants. His next appointment was to the managership of the East St. Louis, Ill., mill. He was then transferred to Pittsburgh as assistant to T. R. Aken, general manager. In 1907, when the Republic company and the Tennessee Coal, Iron & Railroad Co. were under a common control, Mr. Wuthenow was assigned to Birmingham, Ala., as manager of rolling mills, having supervision over part of the Republic and part of the Tennessee plants. From 1908 to 1914, he was stationed at New York as assistant to John A. Topping, chairman of the board. During the past 11 years, Mr. Wuthenow has been manager of the Western plants of the Republic Iron & Steel Co., with office at Chicago. Few men have had so long an experience in the industry, particularly in the production of bar iron, which will be the product of the Republic Rolling Mill Corporation.

WILLIAM WUTHENOW

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Dr. Siegfried G. Werner, who came to this country in 1923 in the interests of the Schuermann side-blast cupola, has returned to Germany after a recent visit in Cleveland and Chicago. Dr. Werner is proprietor of a number of large foundries in the Ruhr Valley and elsewhere in Germany. For several years he was president of the German Steel Foundries Association and also the German Iron Foundries Association.

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J. B. Marks, assistant to the president Colorado Fuel & Iron Co., Denver, will be relieved of the duties of purchasing agent, being succeeded in that office by Gerald Alley. H. B. Carpenter has been appointed general superintendent of the company's Minnequa works.

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S. R. Olson, director International Construction Co., Ltd., successor to Julian Kennedy, Sahlin & Co., Ltd., London, England, was a recent visitor at Chicago.

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K. H. Hals, for several years connected with the Northern Machinery Co., Minneapolis, as vice-president, has joined the sales department of the Westcott Chuck Co., Oneida, N. Y.

William H. Lyon has been elected president of the Charles Parker Co., Meriden, Conn., manufacturer of hardware, succeeding the late Dexter Parker. Mr. Lyon was secretary-treasurer. William R. Bannister succeeds him as treasurer and Charles S. Parker as secretary.

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Murray H. Owen, who has been connected with the merchandise department of the General Electric Co. for several years, has been transferred to the York Insulated Wire Works of the General Electric Co. to handle general sales promotion in insulated wires and cables.

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John W. Carlton, plant manager for the Union Mfg. Co., New Britain, Conn., manufacturer of lathe, drill and planer chucks, has been relieved of all active duties after 55 years of service. He will be succeeded by George Bush, Mr. Carleton remaining with the company as consultant.

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T. G. Meachem, formerly head of the Meachem Gear Corporation, Syracuse, N. Y., has purchased an interest in the Greasalt Products Corporation, New York, manufacturer of cleaning materials. This corporation has been in business about five years, furnishing cleaning materials which include metal cleaners, enamel strippers, platers' cleaners and composition soap, used by factories, mills, machine shops, etc. Paul Cassidy, New York, is president, with offices at 1966 Broadday. The plant is in the Bush Terminal Building at Brooklyn. Mr. Meachem has been elected vice-president and will have charge of sales, making his headquarters in the Seitz Building, Syracuse. J. D. Kennedy, who has been Mr. Meachem's secretary and purchasing agent for the past 17 years, is manager of the Syracuse office. Branch offices are to be opened in the leading cities.

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Hugh Morrow, vice-president Sloss-Sheffield Steel & Iron Co., who has been in charge of the company's affairs since the death of President James W. McQueen three weeks ago, is a native of Alabama. Born in Birmingham in May, 1873, he attended the public schools there and graduated from the University of Alabama law department in 1894. His father was probate judge of Jefferson County, of which Birmingham is the county seat, for six terms. At the university Mr. Morrow was elected to Phi Beta Kappa. He was for years a member of a leading law firm in the State, and as such handled the business of the Sloss-Sheffield company. In 1899 he was elected to the State Senate and was made chairman of the judiciary committee. In his second term he was president pro tem of the Senate. In November, 1919, Mr. Morrow became vice-president of the Sloss-Sheffield Steel & Iron Co., and from that day has been closely attached to the executive office in daily conferences with the president and heads of departments and participating in every decision as to company policy.

HUGH MORROW

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Alex Dapogny, superintendent Chicago Steel Foundry, Chicago, left that city several days ago for a two months' trip to France.

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Prince Dietrich of Wied, Germany, was a recent visitor at important industrial plants in the Chicago district, including the Inland Steel Co. plant at Indiana Harbor, Ind., and the Western Electric Co. works at Cicero, Ill.

C. P. Shattuck, who for a number of years was field and technical editor of the *Commercial Car Journal*, has joined the staff of the Society for Electrical Development, New York, in the electric delivery truck department. Mr. Shattuck will make a study of the use of electric trucks in reducing city delivery costs and will prepare a series of articles based upon this investigation.

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William E. Holler, vice-president and general manager Flint Motor Co., Flint, Mich., has resigned. No statement was made as to his future plans.

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W. J. Morris, recently elected vice-president in charge of finances and accounting of the Youngstown Sheet & Tube Co., Youngstown, first entered the company's employ Sept. 1, 1906, as cost clerk in the accounting department. He was subsequently appointed chief clerk, and in 1914 elected assistant treasurer, a position which he filled until Feb. 7, 1922, when he was elected treasurer. From 1917 until 1922, Mr. Morris was virtually acting treasurer owing to the illness of Richard Garlick, who retained the title of treasurer. The new vice-president has been closely associated with President James A. Campbell, and his latest promotion came in recognition of his loyal and efficient services to the company. He will be 44 years of age next July. Mr. Morris is a self-made man in the fullest sense of the word, the son of a Welsh puddler of Hubbard, Trumbull County, Ohio. Graduating in 1898 from Rayen High School, Youngstown, his first job was as a messenger boy with the Commercial National Bank of Youngstown. Shortly afterward, he became a bookkeeper for the G. M. McKelvey Co., of the same city, operating a department store. Mr. Morris' entrance into the steel industry was in November, 1899, when he became night time-keeper at the Bessemer plant of the Republic Iron & Steel Co., then under construction. This position he held 14 months, working 14 hours every night, until when the Bessemer plant was operated, he became a clerk. When the Republic company's general offices were established in Pittsburgh, Mr. Morris was sent to that city, remaining with the company six months, after which he returned to join the Sheet & Tube organization.

W. J. MORRIS

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Lawrence R. Clapp, formerly manager of the Allenby Copper Co., Ltd., Allenby, B. C., has become vice-president of the New Haven Copper Co., Seymour, Conn.

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L. F. Nagle, who was recently appointed assistant general manager of sales of the Central Iron & Steel Co., Harrisburg, Pa., has been promoted to general manager of sales, succeeding Harold F. Stevens, announcement of whose resignation appeared in a recent issue of THE IRON AGE. Mr. Nagle has had long experience in the selling and manufacture of steel plates. He was for many years with the old Worth Steel Co., Coatesville, Pa., later a part of the Midvale Steel & Ordnance Co. and now owned by the Bethlehem Steel Corporation. For a few years Mr. Nagle operated his own company at Pottstown, Pa., under the name Nagle Steel Co.

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E. A. Muller, a manager of the American Society of Mechanical Engineers and vice-president and general manager of the King Machine Tool Co. in Cincinnati, has been elected president of the Cincinnati Metal Trades' Association.

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J. Frank Stacey was reelected president of the Stacey Mfg. Co., Cincinnati, at the recent annual stockholders' meeting. Other officers elected were T. C. Ranshaw, vice-president, and Edward J. Baechle, secretary-treasurer. It has been announced that George H. Cressler will continue to serve as general sales manager. The company specializes in the erection of gas holders.

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Harlow Bradley, of the Paris office of the Allis-Chalmers Mfg. Co., Milwaukee, has arrived at the general offices and plant for a business visit. He is accompanied by Mrs. Bradley and they are visiting their parents in Milwaukee.

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Eugene W. Smith, widely known as the originator of the vibratory method of analyzing molding sand, and past president of the Chicago Foundrymen's Club, has been appointed general foundry superintendent of the Crane Co., Chicago, in charge of iron and steel foundries at Chicago, Bridgeport, Conn., Birmingham, Ala., Montreal, Quebec, and Chattanooga, Tenn. He was born at Cincinnati in 1858, and at the age of 14 entered the service of the Crane Co. as a laborer. His entire career of 53 years has been with the same organization. For the first 25 years, save two, he was employed in the malleable shops. Since that time his experience has been in both gray iron and malleable foundries. Latterly he has been superintendent of the No. 2 foundry at Chicago.

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George S. Evans, formerly metallurgist Griffin Wheel Co., Chicago, and now with the Mathieson Alkali Works, with headquarters in the same city, delivered an illustrated lecture on "Desulphurization in the Foundry" before the Chicago Foundrymen's Club at Chicago, Saturday evening, May 9. He stressed particularly the success achieved in removing sulphur from the melt in the manufacture of chilled iron car wheels.

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Paul Andree, for 22 years connected with the Root & Vandervoort Motor Co., East Moline, Ill., up to 1920, as superintendent of the automobile plant, and since then manager of the Cincinnati plant, has joined the organization of the Hoefer Mfg. Co., Freeport, Ill., maker of drilling and boring machinery, as manager.

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Officers of the Winchester Co. were reelected at the recent directors' meeting as follows: Chairman of directors, Louis K. Liggett; president, Frank C. Drew; vice-presidents, Daniel W. Weeks and William A. Tobler; treasurer, Leslie H. Thompson; assistant treasurers, Richard Williams, Jr., Arthur E. Hodgson, and Edgar W. Taft; secretary, Henry Brewer; assistant secretary, Luther W. Crenshaw.

Pittsburgh Foundrymen to Meet Monday

"Recent Foundry Progress" will be the subject of Dr. Richard Moldenke, who will be the speaker at the regular monthly dinner and meeting of the Pittsburgh Foundrymen's Association at the General Forbes Hotel, Pittsburgh, Monday evening, May 18. Election of officers for the new term to begin with June will constitute the important item of the business meeting to follow the dinner. The nominating committee has submitted the following recommendations: For president, William K. Frank, Damascus Bronze Co., Pittsburgh; vice-president, L. V. Stevens, Locomotive Stoker Co., Pittsburgh; secretary-treasurer, William J. Brant, Pittsburgh; executive committee, Ralph W. Jones, Union Switch & Signal Co., Swissvale, Pa.; Thomas A. Reynolds, McConway-Torley Co., Pittsburgh; E. D. Frohman, S. Obermayer Co., Pittsburgh; James Jones, Pittsburgh Valve Foundry & Construction Co.; C. D. Carey, Verona Steel Casting Co., Verona, Pa.

OBITUARY

DR. CHARLES WILLIAM BURROWS, preliminary announcement of whose death on May 2 was published in THE IRON AGE, May 7, was one of the leading American authorities on the magnetic testing of steel. He was born in Ontario, Canada, in 1874. After obtaining his early education in the public schools of Detroit, he was graduated from the University of Michigan in 1898, securing from the same institution the degree of Doctor of Philosophy in 1907. From 1898 to 1904 he taught physics in the Detroit High School and from 1904 to 1905 was an instructor of physics in the University of Michigan. He became a member of the technical staff of the Bureau of Standards, Washington, in 1906 and continued in this capacity until 1918, having charge of the magnetic section. During the war years he was associated in a technical way with the Naval Consulting Board and the Navy Department, solving many problems and offering much valuable advice. Since 1918 he has been a consulting engineer, having direct contact with large corporations. At the same time he perfected some of his inventions, among which are the magnetic permeameter, the magnetic defectoscope, the magnetic analyzer and other apparatus. For several years prior to his death he was vice-president and actively interested in the Burrows Magnetic Equipment Corporation, a subsidiary of the Federated Engineers Development Corporation, Jersey City, N. J. He was the author of many important and valuable bulletins of the Bureau of Standards, of papers read before technical societies and of other contributions. He was a member of the American Institute of Electrical Engineers, Society of Automotive Engineers, American Society of Mechanical Engineers, American Society for Testing Materials and the American Society for Steel Treating, as well as the Engineers Club of New York.

CHARLES W. BURROWS

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CORDENIO A. SEVERANCE, of St. Paul, Minn., who was prominent in the Pittsburgh Plus case as a legal representative of the United States Steel Corporation, died at his winter home at Pasadena, Cal., May. 6, from a heart attack. Mr. Severance was widely known as an attorney and was formerly president of the American Bar Association. As a young man he became associated with the late United States Senator C. K. Davis of Minnesota and in 1887 formed with Mr. Davis and Frank B. Kellogg, now Secretary of State, the firm of Davis, Kellogg & Severance. He was associated with Richard V. Lindabury in defending the United States Steel Corporation in the dissolution suit brought by the Government in 1911.

Mr. Severance had been connected with the Steel Corporation since its organization, latterly as division counsel in Michigan, Minnesota and Wisconsin. It was while he was preparing the corporation's case in the Pittsburgh plus litigation for presentation to the Interstate Commerce Commission that he was taken ill. He had a wide reputation as an authority on anti-trust litigation.

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HARRY S. HUNTER, president Hunter Saw & Machine Co., Pittsburgh, died May 7, at Cambridge Springs, Pa. He was born in Butler county, Pa., 56 years ago and went to Pittsburgh in 1886, becoming associated with the old N. Baird Machine Co. Later he became Pittsburgh district manager of the Chicago Pneumatic Tool Co. In 1889 he founded the Hunter, Anschautz & Kennedy Co., which later became the Hunter Saw & Machine Co. He also was president of the Cowles Tool Co., Cleveland, and a director of the Allegheny Valley Bank of Pittsburgh. He was a member of the Duquesne Club of Pittsburgh, Pittsburgh Athletic Association, Pittsburgh Field Club, Railway Club of Pittsburgh, Fellows Club, Engineers' Society of Western Pennsylvania and the American Society for Steel Treating.

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GEORGE G. BOOTH, vice-president Diez & Roemer Brass Co., Baltimore, died suddenly on May 8 at his home in Baltimore from heart disease. Mr. Booth is survived by his wife and one son.

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HENRY H. BRADY, aged 53 years, president International Graphite Lubricating Co., died at his home in Scranton, Pa., May 5, following a brief illness. During the war he served as inspector in the Inspector General's department.

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WHEATON BRADISH BYERS, president New England Metallurgical Co. and treasurer A. E. Hunt Steel Co., Boston, died Thursday, May 7, of acute heart trouble. Mr. Byers was born in Newton, Mass., in 1893. He prepared for college at St. George's School, Newport, R. I., and was graduated from Harvard in 1915. During the war he held the rank of captain in the ordnance department, and during most of the time was stationed at the arsenal in Watertown, Mass.

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LEWIS H. METZGER, formerly head of the jobbing business in relaying rails and railroad equipment, at Mobile, Ala., now conducted by Leopold H. Metzger, his son, died recently. He had spent more than 50 years in the business.

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H. R. HERSCHEL, SR., president R. Herschel Mfg. Co., manufacturer of farm equipment, Peoria, Ill., died April 29.

More Than 25 Per Cent of Immigration Is from Germany

WASHINGTON, May 12.—Immigration to the United States in March totaled 26,619, of which 15,491 were males and 11,128 females. Immigration from Europe was 16,591, the largest number from any single country being 4927, coming from Germany. The Irish Free State supplied 3203, while England provided 1349. The number from Scotland was 1402. Some of the totals from countries which supply the greatest amount of labor in American iron and steel mills are as follows: Austria, 117; Belgium, 64; Czechoslovakia, 273; Hungary, 56; Italy, including Sicily and Sardinia, 527; Latvia, 33; Lithuania, 34; Poland, 723; Roumania, 140; and Yugoslavia, 85. Immigration from Canada was 4326 and from Mexico 4937. The Bureau of Immigration in the March quota lists 108 of the aliens as skilled iron and steel workers and 22 as skilled metal workers, while 4901 are classified as laborers.

Emigration in March totaled 4993. Deportations that month amounted to 1069.

No Change in Sheet and Tin Mill Wages

YOUNGSTOWN, May 11.—Tonnage rates paid in mid-Western sheet and tin mills operating under the sliding scale wage agreement of the amalgamated association of iron, steel and tin workers continue unchanged for the May-June period, as compared with the rates paid in March-April. This was disclosed today at the bimonthly settlement, when the average selling price of Nos. 26, 27 and 28 gage black sheets, shipped by participating mills for the 60-day period ended April 30, was revealed as $3.40 per 100 lb. This is unchanged from the average two months ago.

Affected workers are now paid a rate 37½ per cent above base.

Shipments showed a moderate increase over the preceding bimonthly period. M. F. Tighe, Pittsburgh, represented the workers and James H. Nutt, Youngstown, the manufacturers.

European Markets Mostly Inactive

Semi-Finished Steel in High Demand—Germany Active in Wire, Beams and Reinforcing Rods—Pessimism in Great Britain

(By Cablegram)

LONDON, ENGLAND, May 11.

PIG iron generally is quiet, but prices are steady. Domestic consumers are buying from hand to mouth, while export users are not attracted to purchase in any volume. There has been no further curtailment of output, but there is talk of blowing out more furnaces shortly, unless there is a material alteration in the general demand situation. Hematite stocks are still large, but are not increasing, owing to restricted production. There have been some fair sized forward contracts placed.

Foreign ore is dull in respect to British users, but Italy is buying heavily of Spanish and North African grades and is reported inquiring for 1,000,000 tons.

Finished steel is still in a precarious position. Business is very quiet, especially for export. Consequently competition for orders is keen among the makers. There is an unconfirmed report that Pease & Partners, Ltd., will close the Tees-Bridge Works, probably mainly to effect repairs.

Sheets and Tin Plate

Tin plate bars have been reduced to £7 (in place of £7 17s. 6d.), delivered, on account of the collapse of the tin plate stabilization scheme. Tin plate is steadier after the recent heavy fall in price and there is a fair business, both domestic and export, moving around 20s. 6d. to 20s. 9d. ($4.96 to $5.02) basis, I. C., f.o.b. works. Prospects now are somewhat brighter.

Indian demand for galvanized sheets is poor; other markets are moderate buyers.

Black sheets are quiet. There is no business to Far Eastern specifications.

On the Continent of Europe

Continental markets are an enigma. There is little fresh business in finished iron and steel. British consumers of semi-finished steel are in the market. Billets have been sold at £5 5s. ($25.41) f.o.b.; sheet bars have been done at £5 15s. ($27.83), c.i.f. South Wales. India has bought joists (structural beams) at £5 7s. 6d. (1.16c. per lb.) f.o.b.

French rail makers are reported to have formulated a loose price convention to control the sale of rails.

British Pessimistic as Situation Fails to Show Improvement

LONDON, ENGLAND, April 30.—The general position of the iron and steel trades in this country continues desultory and without any sign of immediate improvement. The chief topic, of course, has been the publication of the budget, and it remains to be seen how far trade in general will benefit. In the meantime iron and steel manufacturers in this country strive to carry on, but the demand for pig iron and manufactured iron and steel materials is poor and even the blowing out of more furnaces has not improved matters to any important degree. The Steel Association has withdrawn the fixed prices in the home trade, and this has led to an immediate drop of 7s. 6d. to 10s. ($1.80 to $2.40) a ton on ship plates and sections, but consumers are not attracted, except to cover their immediate requirements. Export buying also is poor, particularly of British material, while the demand for Continental iron and steel has waned, also.

F. W. Gilbertson, on the occasion of his re-election as president of the Swansea Metal Exchange, gave expression to pessimistic opinions on the present position and the prospects of the British iron and steel industry, more especially as regards South Wales. The only way in which works can keep going, now that profits have entirely vanished, was, he said, by the workers accepting reduced wages, or by giving greater efficiency and better output per capita.

British vs. Continental Wages

To exemplify the excessive wages paid in this country, he pointed out that the average of a skilled steel

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British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.84 per £1, as follows:

Durham coke, del'd..	£1	2s.				$5.32		
Bilbao Rubio ore†...	1	2½				5.45		
Cleveland No. 1 fdy..	4	2				19.84		
Cleveland No. 3 fdy..	3	17				18.63		
Cleveland No. 4 fdy..	3	16				18.39		
Cleveland No. 4 forge	3	15				18.15		
Cleveland basic	3	15½				18.27		
East Coast mixed....	4	1½				19.72		
East Coast hematite..	4	19	to £5	0s.		23.96	to	$24.29
Ferromanganese	15	0	to 15	10		72.60	to	75.02
*Ferromanganese	15	0	to 15	10		72.60	to	75.02
Rails, 60 lb. and up..	8	10	to 9	0		41.14	to	43.56
Billets	7	0	to 8	0		33.88	to	38.72
Sheet and tin plate bars, Welsh	7	0				33.88		
Tin plates, base box..	1	0½	to 1	0¾		4.96	to	5.02
						C. per Lb.		
Ship plates	8	12½	to 9	2½		1.86	to	1.97
Boiler plates	12	10	to 13	0		2.70	to	2.81
Tees	8	12½	to 9	2½		1.86	to	1.97
Channels	7	17½	to 8	7½		1.70	to	1.81
Beams	7	12½	to 8	2½		1.65	to	1.75
Round bars, ¾ to 3 in.	9	0	to 9	10		1.94	to	2.05
Galv. sheets, 24 gage	16	10	to 16	12½		3.57	to	3.59
Black sheets, 24 gage	11	10				2.48		
Black sheets, Japanese specifications	15	5				3.30		
Steel hoops	10	15	and 12	10*		2.32 and		2.70*
Cold rolled steel strip, 20 gage	16	0				3.46		

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron: (a)								
Belgium	£3	12s.	to £3	13s.		$17.42	to	$17.66
France	3	12	to 3	13		17.42	to	17.66
Luxemburg	3	12	to 3	13		17.42	to	17.66
Basic pig iron: (a)								
Belgium	3	11	to 3	12		17.18	to	17.42
France	3	11	to 3	12		17.18	to	17.42
Luxemburg	3	11	to 3	12		17.18	to	17.42
Billets:								
Belgium	5	5				25.41		
France	5	5				25.41		
Merchant bars:						C. per Lb.		
Belgium	5	12½				1.22		
Luxemburg	5	12½				1.22		
France	5	12½				1.22		
Joists (beams):								
Belgium	5	8				1.17		
Luxemburg	5	8				1.17		
France	5	8				1.17		
Angles:								
Belgium	5	18½	to 6	0		1.28	to	1.30
½-in. plates:								
Belgium	6	17½				1.49		
Germany	6	17½				1.49		
⅜-in. ship plates:								
Luxemburg	6	17½				1.49		
Belgium	6	17½				1.49		

(a) Nominal.

worker in Belgium is 38s. ($9.44) a week, in France, 33s. 7d. ($8.13) a week, in Germany 42s. 6d. ($10.28, this for a 60-hour week), while in England the average of skilled and unskilled men is more than double the French skilled wage, and locally in some plants works out to 75s. ($18) a week. To cite a still more glaring comparison, the wage of a first melter on a large modern furnace in Belgium is 59s. 6d. ($14.40) for a six-day week, and in England from £7 to £12 ($33.75 to $58), running, in cases of exceptionally high output, up to £20 ($96.80).

The wage question is rapidly becoming acute here, and the engineering trade unions have received from the employers counter proposals to their application for a flat rate advance of wages of £1 a week. The counter proposals practically mean that the men shall work three additional hours a week on the day shift (½ hr. a day), and receive 5s. ($1.21) a week more wages, and that on night shift they shall work 5½ hr. longer and receive 1s. 7½d. (39c.) a week more. What the employers are chiefly concerned about is to increase output, so that the cost of production per unit may be lessened, but the unions are dead against this and, unless omens are deceptive, troubled waters lie ahead.

GERMAN MARKET ACTIVE

Building Materials and Wire in Demand—New Syndicate in Steel Industry Formed

BERLIN, GERMANY, April 27.—Semi-finished material and thin plates are exempted from the 85 per cent restrictions of the German Raw Steel Syndicate as reduced production would not meet the demand. The iron market is stiffening again lately and it seems that, in spite of the uncertain political and economic conditions, consumers are gradually giving up their reserve. It is also recognized that, in spite of the severe criticism leveled at the producers in regard to prices, reductions are improbable. The Franco-German negotiations are expected to lead to an understanding eventually, which will prevent the dumping of French iron on the German market.

Customers are placing more orders now and the works are well booked. Generally they cannot accept large orders, as they have sold their production for some months ahead. The time of delivery has also been extended except for billets, universal iron and heavy sheets. For heavy iron and for structural shapes the manufacturers are asking six to eight weeks, and for thinner bar iron two to three months. Some of the larger works are still declining orders, especially for bar iron and structural shapes. Probably this is not entirely due to inability to cope with the orders, but to the desire not to be fixed too much in view of the development in the formation of syndicates as well as the probable outcome of the Franco-German negotiations.

Heavy Demand for Wire and Building Steel

Structural shapes and reinforcing iron are in greater demand, owing to the larger requirements of the building industry. The market for sheets has hardly altered lately and demand is slack on account of the consuming industries receiving few orders. Specialties move in good shape. Wire of all descriptions, especially rolled wire, is in great demand. Works prices have changed little during the last fortnight.

Demand for scrap has not decreased; on the contrary, consumers at present are trying to lay in greater stocks. There is a scarcity and traders have great difficulties to procure sufficient supplies. The Scrap Purchasing Co., established by Central German, Upper Silesian and Saxon iron works for the joint purchase of their scrap requirements, has been extended for another term of more than two years to July 1, 1927. To bring about an improvement in the conditions in the scrap market, some members of the Association of German Scrap Traders have established the Schrottverkaufs Gesellschaft as an agency in the scrap trade.

The pig iron association and the Siegerland iron ore syndicate announce that their prices remain unaltered during May. The Federal Railroad Co. reduced the freight rates for iron and steel products for shipbuilding purposes to 30 to 35 per cent of the normal rates, to draw the transport of this material, which is to a large extent carried on the waterways.

Changes in Methods of Handling Steel Sales

High cost of production and overhead charges are forcing most iron and engineering firms to make extensive improvement in their organizations. Even Krupp is forced by the slackness in some lines to reorganize and to reduce its staff. The manufacture of small machinery and apparatus is to be discontinued as far as it has proved unprofitable, while the production of motor lorries and agricultural machinery is to be increased. The production of the main steel works and rolling mills and of the mines is not to be reduced at present. The locomotive and car factories and the Germania dockyard at Kiel are poorly employed.

An especially noteworthy change, taking place in the German iron trade, is brought about by the growth of the trading organization of the large iron works. The producers have systematically built up these organizations, which are gaining a strong influence in the trade and are gradually excluding the wholesalers. The trading organizations of the iron works are financially stronger than the wholesalers and the large and well assorted stocks they keep in many parts of the country enable them to compete, even for comparatively small lots. While some years ago the producers were to a certain extent protecting the wholesalers, they now are competing against them. The export business is also to a great extent controlled by the trading organizations, which have erected large stores in several countries abroad.

No International Syndicate Probable

Negotiations for the formation of special syndicates within the Raw Steel Syndicate are making slow progress. A syndicate agreement has now been signed by the leading firms producing A products (semi-finished material, rails and track supplies and structural shapes) for the establishment of a syndicate in this line for the next five years. From May 1, all sales are to be conducted by the syndicate. Negotiations for the establishment of syndicates for the other iron products have, except in the tube industry, not been successful. The sales of the tube syndicate have been comparatively small, as the traders, who have still large stocks, are cutting prices. There seems to be no possibility to come to a general understanding with the iron and steel producers in other countries, as some of the ironmasters abroad are opposed to the formation of international syndicates.

Competition with Czecho-Slovakia

Conditions in the German Upper Silesian iron market have changed little recently. The ironmasters complain of the pig iron trade being unprofitable, owing to the high ore prices. Demand for pig iron is, however, unaltered and the production is finding a ready sale. Competition of Czecho-Slovakian iron producers is strongly felt lately, as they make cheap offers. The business in structural shapes and sheets has not improved as expected, and has even been slackening lately, as the building industry in the district is only poorly employed, due mainly to the prevailing scarcity of capital. In forgings the works have still sufficient orders at prices which, contrary to those of rolled material, leave a good margin of profit. The railroad is holding back with orders for castings, as well as for other iron and steel material, which is adversely influencing emthe near future. Export orders have been scarce.

FRENCH PRODUCTION HIGH

Iron and Steel Market Dull, in View of Full Order Books—Semi-Finished Steel Active

PARIS, FRANCE, May 1.—Dullness continues, for confidence is not yet restored; yet there is a prevalent feeling of relaxation which might have a beneficial effect. Men wonder if the Government will be able to correct the financial and monetary situation without having recourse to those very measures which may bring on a new wave of distrust. Everywhere, in all centers of production, orders are rare; yet production progresses steadily, or at least maintains its high figures, and finds a ready outlet, since no undue stocks exist.

Export business also is extremely calm and more difficult by reason of competition. Anticipating the Franco-German agreement, which is expected any time, German steel rollers have placed orders for semi-finished products in Lorraine works; in consequence, a better tendency in the market for steel is expected. In the Saar district, German demand is strong and there is talk of an increase in export prices; with regard to France, no change in prices is considered.

Coke.—For the first 28 days of April the ORCA has received from the Ruhr 296,381 tons of coke, i.e., a little less than 10,600 tons per day. The price of indemnity coke will be maintained during May, while for the Belgians the same coke is to be decreased by 5 fr. to 125 fr. ($6.63 per gross ton).

Pig Iron.—Production at the present time is much the same as in March, the official figures of which have not yet been announced, but are more or less those of February. The market is extremely calm with regard to phosphorus cast iron; orders have been less numerous for April than for March. Contrary to rumors, it is probable that the April price of 345 fr. ($18.30) will be maintained during May. Export prices are less well sustained. Belgium asks 350 fr. f.o.b. Antwerp, or 341 fr. French currency ($18.08); Luxemburg quotes the same price and, if we wish to secure business, we must follow suit.

Hematite prices remain unsettled; in the East one deals at 410 to 420 fr. ($21.75 to $22.27) per ton at works; in the Center region the slackness of business with Italy forces certain producers to heavy and varying concessions; prices lie between two extremes: 400 to 430 fr. ($21.20 to $22.80); hematite first choice, whose yield is 2 to 3 per cent Si and 0.80 to 1 per cent Mn, brings 440 to 445 fr. ($23.33 to $23.60) on truck Rouen; in the South-West region, quotations are 420 to 430 fr. ($22.27 to $22.80) at works, according to grade. Hereafter a few prices for British hematite c.i.f. Rouen: Si, 2.30 to 2.50 per cent; Mn, 0.55 per cent; S, 0.09 per cent; P, 1.50 per cent, at 88s. 9d. ($21.39); Si, 2.00 to 2.50 per cent; Mn, 0.50 per cent; S, 0.04 per cent; P, 0.04 per cent, 102s. ($24.60).

Semi-Finished Products.—This is the liveliest department in the market; not only is inland demand good, but export business is pretty active and at interesting prices, though easier. Prices are £5 2s. ($24.60) for blooms; £5 4s. ($25.05) for billets; £5 6s. 6d. ($25.65) for largets; these prices f.o.b. Antwerp stand at 474 fr. for blooms; 483 fr. for billets; 494 fr. for largets. British buyers, moreover, offer but £5 ($24.10) for billets (464 fr.), which is evidently less attractive than the inland basis price of 440 fr. ($23.33).

Rolled Steels.—Quiet; heavy orders are lacking; orders are more commonly from 500 kg. to 1 ton and works see, with anxiety, their bookings disappear. Under these circumstances famine prices would prevail if producers' ententes had not existed. It is anticipated that prices will be maintained during May. Export demand is of no interest and prices are much discussed; contrary to the semi-finished situation, prices are too low to tempt French exporters. Bars, f.o.b. Antwerp, have fallen to £5 12s. 6d., i.e., 526 fr. (1.21c. per lb.), while the inland price is 530 fr. (1.23c.) basis. Beams are quoted £5 7s. to £5 9s. (497 to 506 fr. or 1.16c. to 1.18c.).

Sheets.—Slightly better than rolled steel, not that business is active, particularly with regard to heavy and medium sheets. The entente maintains the basis price of these two latter grades, but the price of light sheets is under revision. The margin existing between French and foreign prices, delivered, being much too marked in certain quarters, has been slightly decreased and now heavy sheets are at 720 to 740 f. (1.68c.) to 1.72c.); medium sheets at 820 to 890 fr. (1.91c. to 2.07c.) and light sheets at 1040 to 1090 fr. (2.42c. to 2.54c.). There are a few orders for heavy sheets, but in consequence of the fierce competition between French, Luxemburg and Belgian producers, prices are on a decreased rate at £6 16s. 6d. to £6 17s. 6d. (1.47c. to 1.48c. per lb.).

BELGIAN BUSINESS SMALL

Selling Prices Too Near Costs—Semi-Finished Steel Somewhat Less Active

ANTWERP, BELGIUM, April 22.—Inquiries are more numerous but business remains small and limited. The market is still uncertain, as a fortnight ago, but a considerable fall in prices seems impossible. Selling prices are too near manufacturing costs, in some cases even under. This compels makers to resist as well as possible but they have had to give way slightly in some cases. Buyers energetically push for reductions, assisted by the scarcity of orders. Luxemburg competition has become stronger while, on the other hand, expectation of lower wages, lower prices for coal (already partly realized) and coke, also the uncertainty of the economic and political situation, cause the general uneasiness of the market to increase. Even for this country business is mostly calm, contrary to the situation in France, where the market is sufficiently active so that momentarily the Belgian market does not suffer too much from French under-quotations. Price reductions are not large, but the tendency of the market is decidedly worse than at last report.

For steel buyers have kept out of the market; makers, as above, mostly maintain the former position, but in this way cause an interruption to business which, in turn, provokes a weakness of prices. Bars quoted nominally at £5 14s. (1.23c. per lb.) were finally booked under this price, as low as £5 13s. f.o.b. Antwerp, otherwise $27.20 (1.22c. per lb.). Different makers and exporters have accepted this last price. Home business was treated on the basis of 540 to 545 fr. or $27.50 (1.23c.). Beams have suffered as much and maintained in an easier way their former quotations of $26 (1.18c. per lb.) basis, for normal sections, with $26.50 (1.20c.) for abnormal sections. For home consumption prices were somewhat higher, about 530 fr. or $26.80 (1.21c. per lb.) in such cases per metric ton. Wire rods were reduced to meet new German prices. Other prices were approximately as follows:

	Fr.	Per Lb.
Bars, basis	540 or	$27.20 or 1.22c.
Beams	514 or	26.00 or 1.18c.
Rods	432 or	21.90 or 1.42c.
Corrugated bars	595 or	30.00 or 1.34c.
Steel hoops	730 or	36.85 or 1.65c.
Cold rolled steel hoops	1,080 or	54.50 or 2.43c.
Drawn steel, squares	900 or	45.45 or 2.03c.
Drawn steel, rounds	875 or	44.20 or 1.97c.
Drawn steel, hexagons	975 or	49.25 or 2.20c.
Spring steel	1,025 or	51.75 or 2.31c.
Rails	600 or	30.30
Wire rods	620 or	31.30

Sheets.—The price for heavy sheets remained at £7 f.o.b. Antwerp ($33.65 or 1.50c. per lb.) with £7 12s. 6d. ($36.70 or 1.63c. per lb.) or thereabouts for ⅛-in. Makers are well provided with orders for this class of material and therefore maintain prices easily. The thinner sheets are more depressed; their market, however, seems to recover. Approximate prices per ton of 2240 lb., f.o.b. Antwerp, are:

	Fr.	Per Lb.
Thomas sheets 0.5 mm. (No. 26 gage)	1,120 or	$56.55 or 2.52c.
Thomas sheets 1 mm. (No. 20 gage)	975 or	49.25 or 2.20c.
Thomas sheets 2 mm. (No. 14 gage)	815 or	41.15 or 1.84c.
Thomas sheets 3 mm. (No. 11½ gage)	720 or	36.35 or 1.62c.
Thomas sheets 5 mm. (No. 6½ gage)	665 or	33.65 or 1.50c.
Galvanized sheets 0.5 mm	2,220 or	112.15 or 5.01c.
Galvanized sheets 1 mm	1,680 or	84.85 or 3.79c.
Polished sheets, average price	1,475 or	74.50 or 3.33c.

Iron.—Little business is available for this material. Prices offered are again lower, while costs remain high on account of dear scrap. This market is totally depressed and makers' position remains bad. Prices run approximately as follows:

	Fr.
Commercial iron No. 2, basis.....	575 or $29.00
Commercial iron No. 3, basis.....	585 or 29.55
Commercial iron No. 4, basis.....	600 or 30.30

Blooms, Billets and Slabs.—As before, only small quantities of semi-finished products are available. This market is no longer so strong but, as inland demand is good, prices do not move much. They are, however, still far away from prices offered from England, so that even if there were stocks, business would not develop at once. As a guidance, Belgian prices are as follows:

	Fr.
Thomas billets	500 or $25.15
Thomas blooms	490 or 24.65
Thomas slabs	510 or 25.75

Pig Iron.—Just as a fortnight ago, phosphoric pig iron No. 3, with 2.5 to 3 per cent Si, is quoted at 355 to 360 fr. f.o.b. Antwerp, i.e., $18.20 per gross ton. Demand is good but not large. Luxemburg competition is strong, with weak prices. Demand from abroad for this quality of pig iron is not favorable. Semi-phosphoric pig iron is largely offered from France but without success, as even their low prices are undercut by new German offers. Founders in general complain of too few orders and do not feel it necessary to buy ahead.

Belgian hematite pig iron is quoted now about 410 to 415 fr. ($21.03 to $21.30) f.o.b. Antwerp or carriage paid, a price which is largely under the English quotation, notwithstanding the last reductions, which brought such prices for East Coast mixed numbers hematite as low as £4 7s. and £4 8s. ($20.96 and $21.20) c.i.f. Antwerp.

British Empire Steel Corporation Activities

Vice-president McLurg of the British Empire Steel Corporation has announced that at the completion of the present Canadian National Railway order for steel rails, the mills will roll 1380 tons of rails for the Quebec Central Railway. This will supply work for several weeks, after which the future is said to be uncertain, depending upon the general condition of the steel market.

According to recent reports two of the three blast furnaces now blowing will blow out about June 15, but the third stack will continue in operation to supply iron needed for steel making and for the operations of the wire, nail and other mills, which will continue at their present rate indefinitely. During April No. 1 blast furnace produced 13,496 tons of basic pig iron, as against 13,191 tons, the best previous record, which was made in March, 1924. A number of other minor records were also broken during the month of April.

At the Trenton steel plant at New Glasgow, N. S., the corporation is preparing for more extensive operations. H. J. Kelly, general manager of the corporation, is at present engaged in moving from Montreal to the Trenton, N. S., plant, the equipment and machinery of the Montreal Bolt & Forging Co. which will enable the corporation to expand its manufacturing production in Nova Scotia.

For the best photograph or sketch illustrating work done by the Milburn welding and cutting apparatus a prize of $25 will be offered monthly by the Alexander Milburn Co., 1416 West Baltimore Street, Baltimore. A form of card to be submitted with the photograph offered in the contest may be obtained by addressing the company.

The Concrete Engineering Co., dealer in reinforcing steel and distributor of wire and wire products, with office and warehouse at 1926 South Fifty-second Avenue, Chicago, has opened a downtown office at 827 First National Bank Building.

Luxemburg Industry Complains of High Costs

LUXEMBURG, April 30.—Political and economic unrest of neighboring countries has affected the iron and steel market of the Grand-Duchy. Negotiations of producers from Lorraine, Luxemburg and Germany have not led to an immediate solution of the crisis. However, this dullness has not hit markedly the working of the bigger plants, which, being well booked in orders, have been able to oppose a resisting front to the bear maneuvers of the buyers. The volume of business has been restricted and no real prices have existed for a number of products. Some items are interesting, of which rails and sheets are prominent, while demand for semi-finished products has risen slightly. As heretofore, the works have maintained a high production so as to reduce unit costs, which continue high in consequence of the heavy wages paid.

Luxemburg products are pretty much in demand and our plants have been able to obtain important orders from South America, where the iron and steel market develops but slowly. On the other hand, the market in the Far East has been unsettled further, by the failure of several firms; one of the latter has been obliged to throw important stocks on the Japanese market.

During the last days of April the market has shown further weakness; new business is insignificant and prices barely nominal. F.o.b. Antwerp, Luxemburg exporters compete not only with their usual competitors, the Belgians who quote about the same prices as their own, but the Lorraine competitors, who multiply their offers since they find but little outlet on the French inland market. This competition has more particularly affected heavy sheets, with price drops.

Pig iron No. 3 is quoted at 350 fr. ($18 per gross ton) and basic iron, 335 fr. ($17.25). In semi-finished products, basic steel blooms are at 460 to 475 fr. ($23.65 to $24.45); billets, 495 to 500 fr. ($25.50 to $25.75); largets, 510 to 515 fr. ($26.25 to $26.50); wire rods, £6 7s. to £6 7s. 6d. ($30.60 to $30.72); beams, £5 7s. to £5 7s. 6d.(1.15c. to 1.16c. per lb); bars, £5 12s. 6d. (1.21c.); heavy sheets, £6 16s. 6d. to £6 17s. 6d. (1.47c. to 1.48c.), having fallen by 2s. to 3s. (48c. to 72c.) within the last eight days.

French Iron and Steel Imports and Exports

PARIS, FRANCE, May 1.—Figures follow concerning exports and imports of France during the first quarter of 1925 and of 1924.

Pig Iron.—Imports: 7904 metric tons, as against 13,036 tons in 1924; exports: 164,536 tons in 1925, as against 215,712 tons in 1924.

Ferroalloys.—Imports: 6936 tons, as against 395 tons in 1924; exports: 1127 tons in 1925, as against 6042 tons in 1924.

Iron and Steel.—Imports: 42,588 tons in 1925, as against 199,632 tons in 1924; exports: 734,489 tons, as against 650,499 tons in 1924.

France has exported to the United States in the first quarter of this year 740 tons of raw pig iron, 1108 tons of iron and steel in blooms, billets, bars, etc., and 1714 tons of rails.

Graphite in 1924

Geological Survey figures for the production of natural graphite in the United States show an output in 1924 of only 4971 net tons, valued at $87,510, compared with 6038 tons in 1923, valued at $190,944. The unit value decreased from nearly $32 per ton in 1923 to less than $18 in 1924. Amorphous graphite accounted for 4071 tons in 1924 and for 4056 tons in 1923. Crystaline graphite amounted to 900 tons in 1924 and 1982 tons in 1923.

Artificial graphite, as manufactured at Niagara Falls, N. Y., showed a greater decrease than that of the natural graphite. The production in 1924 was 5493 net tons, compared with 13,381 tons in 1923.

Increasing the Use of Steel Sheets

(*Continued from page* 1417)

lieve I can state with certainty that the sheet metal contractor and the tinsmith believe and tell the consuming public that the sheet steel of today is inferior to the sheet iron and tin of a quarter of a century ago; that galvanized sheet steel will not last; that prepared roofings give better service in proportion to cost and that copper is more economical than steel in the end and, no matter how great a demand for our products our advertising may create, the local sheet metal contractor or tinsmith can undo in 15 minutes' conversation, with a prospective purchaser of sheet steel, everything which we have spent thousands of dollars to create. If our products are inferior in quality, then no amount of effort on our part and no expenditure of money can permanently restore the public confidence which we seek. If our products are worthy of public confidence, then we must first restore confidence in the mind of the distributor who comes in direct contact with the consuming public.

"And I am further satisfied that we must not only educate the public to use proper materials for definite purposes, but it is equally important that we educate the public to have the proper materials properly fabricated and properly erected by mechanics skilled in the trade. A 26-gage corrugated steel roof bearing our 'master brand' guarantee of quality will not prove satisfactory if the seams are not properly closed and the wrong kind of nails are used to fasten it to the sheathing. If we are able to persuade the consuming public to desire and demand articles made of sheet steel and then convince the retail dealer, the sheet metal contractor and the tinsmith that we are manufacturing a product worthy of his confidence, and which he will be justified in selling both from a quality and financial standpoint, we need worry no further about advancing the interests of the fabricator, the jobber and the manufacturer. To my mind, the sale of our idea and our products to the retailer is the greatest problem confronting our organization today."

Advocates Model House Building

Venturing into the perspective Mr. Patterson said: "I trust I may not be considered illogical and visionary when I predict that the day is not far distant when sheet steel will not only enter into the construction, finishing and furnishing of homes to a far greater extent than ever before, but that the all-steel house, such as is being manufactured and erected in Great Britain today, will soon be as staple an article of merchandise as any quoted in a mail order house catalog.

"There have been wonderful strides recently in the development and promotion of the warm air heating industry and the increase in the sale of warm air heating plants during the past two years, over previous years, has been remarkable. This development has been due largely to the scientific research which has been conducted by the National Warm Air Heating and Ventilating Association, cooperating with the University of Illinois. This association has erected at Urbana, Ill., a model residence in which scientific investigations are conducted and in which every model of furnace and system of heating and ventilating are tested. We all know of the electrical houses which have been displayed in the larger cities for the purpose of educating the public in the uses of electrical devices in the home.

"Is it not within the bounds of possibility that we might find it profitable to erect in some of the larger cities the 'sheet steel house,' not necessarily with walls of steel, but roofed with sheet steel building tile, with eaves troughs and down spouts of sheet steel, equipped with metal sills, studding, joists, bridging rafters and cornices, plastered over metal lath, window and door frames, sash and doors, casings and base boards, picture moldings and ceilings of steel, laundry chutes, linen closets and fruit closets and coal bins and chutes of the same material, enameled sheets on the bathroom and kitchen walls and ceilings, heated with an all-steel furnace and furnished with metal picture frames, metal furniture and metal stoves, boilers and cooking utensils? If we have faith in the utility and durability of sheet steel for these uses, we can best instill that faith in others by its demonstration in public places.

"It has been the experience of those engaged in trade promotion activities that personal contacts must be established with the agencies engaged in the distribution of any products and with the institutions where the personnel of such agencies are trained. Education is the foundation stone on which all trade promotion enterprises are built. Analytical research as to the possibilities of additional uses of any product, leading to the encouragement of more energetic efforts to expand existing fields, and to persuade the consuming public to make additional uses of a product in accordance with facts obtained from such research, is a coordinate function of educational work.

"Every individual member would receive much valuable information from educational and analytical research work and would be enabled better to canvass the field for the extension of the sale of their own products; and the contacts between our educational department and sales organizations of member companies would be to the mutual benefit of both."

The Why of Certain Building and Fire Codes

In his paper on "Building and Fire Codes Create Sales Resistance," George L. Bennett said, in part:

"For practically every building requirement, more than one sort of material or kind of construction is on the market. The writing into the code of any requirement which places one material or construction at a competitive disadvantage is consequently immediately favorable to the substitute therefor. And not only to the substitute material and construction and all who are interested therein, but also to the building trade which does the work of putting the material into place. All those adversely affected tend, therefore, to bring pressure upon the code authorities to have restrictions adverse to them removed and further, to have restrictions adverse to their competitors introduced.

"In this battle of wits, few code requirements are absolutely without reasons for, generally speaking, the code authorities, however much reviled, are fairly impartially minded. There are many angles from which every requirement has to be viewed. And if by artfully stressing some of these angles, by making tests that seem to prove the superiority of their material and by the creation of popularity through advertising, the associated makers of any building material have the building codes drawn in their favor, have the competitors anything but their own inertia and over-confidence to blame?

"We can say definitely that building and fire codes do create sales resistance. While originally intended only to require construction and materials safe against loads and fire hazards, building codes have in many cases been used to furnish protection against unsightly or weak appearing structures. Consider for instance the small all-steel garages. Recently a building official of one of the largest cities in New York explained that small sheet metal garages were all so ugly, so flimsy and so cheap looking that his department was keeping them out by requiring the use of structural steel framing in the sidewalls and roofs, designed to stand loads heavier than any of the sheet metal garages had been built to stand. This official, a man of long experience, high character and ability, unquestionably believes he is doing his duty in protecting his city against this kind of building. And he states that a large majority of the property owners support this attitude.

Sheet Metal Garages

"The importance of this subject may be seen from the fact that, according to figures of the National Automobile Chamber of Commerce, the number of automobiles in use in the United States is growing at the rate of approximately 2,500,000 a year. If these were all housed in one-car or two-car sheet steel garages, the sheet steel covering required would amount to approximately 1,250,000 tons a year, without allowance for replacement of existing garages as they wear out,

burn or are demolished, while the present use for this purpose is probably less than 10 per cent of that amount.

"In 14 out of 17 codes of cities of more than 200,000 population examined on this point, the all-steel garage was given no consideration above the flimsiest wooden construction and, in one of these, it was explicity treated as worse than wood by code provisions. Even if restrictions imposed by load requirements were removed or modified, there would still be the obstacle of poor architectural appearance. This could be overcome by giving sheet metal such a pleasant outward form as to encourage popular favor.

"Only a few positive provisions have been found covering metal ceilings, in the 17 codes examined; one, that of Chicago, makes one coat of plaster on wood lath and a metal ceiling equal to two coats of plaster on wood lath alone. Two others make it equal for code purposes to plaster board only. St. Louis makes it equal to two coats of brown mortar on wire or metal lath, while 13 codes do not mention the matter of metal ceilings at all.

"Steel has in the past occupied such a secure position economically, because of its great strength and its low cost, that defense of it until lately has seemed unnecessary. But the steel from which the dollar-flow starts on its backward path to your pockets is not bundled sheets, but sheets mixed with brains, sheets changed into hundreds of useful forms. Against these, a great variety of other materials mixed with other brains have sprung up and steel, through lack of sales promotion, has lost its place in the procession of building uses. For all building construction materials, the building code controls one of the natural gateways. As one of the strategic points which determine use, it cannot be disregarded."

Labor and Capital Less Antagonistic

IN opening the final business session of the meeting on Thursday morning, A. M. Oppenheimer, president Apollo Steel Co., Apollo, Pa., the chairman, commented interestingly on the satisfactory labor situation, the changed attitude of labor toward capital and the investing by workmen in the stock of their own and other companies; the formerly well-defined division between capital and labor is growing less distinct. Labor, Mr. Oppenheimer said, is now thinking more as capital thinks and that change is one reason for the failure of the third party candidate in the last presidential election to get more of the so-called labor vote. The passing of the old method of labor warfare, as indicated by the recent utterance of W. L. Green, president of the American Federation of Labor, the speaker thought was definite proof of the education labor had received through being interested in industry in a financial way and in the same way the conservative statements of M. F. Tighe, president of the Amalgamted Association of Iron, Steel and Tin Workers, were to be regarded as evidence of the change of attitude of labor.

Mr. Oppenheimer predicted the repeal of the Sherman and Clayton laws, or at least their non-enforcement, as an early possibility, stating that various laws of the past 20 or 25 years have been in response to popular demand and that, with changing times and changing ideas, there is slowly but steadily developing the belief that business conditions require less legislation and less restriction. The great mass of people, he said, now subscribe to that thought.

This session, devoted to the general topic of "Production," was featured by a highly interesting and well-prepared paper by Frank A. Weidman, special representative, Inland Steel Co., Chicago, on the subject, "Distribution Problems, the Value and Effect of Educational Work Within the Sheet Steel Industry." Mr. Weidman asserted that much of the sales resistance in distribution can be ascribed to a lack of knowledge as to the industry's limitations and to the limitations of the steel itself, and offered as a solution the educating of the distributor and buyer through frequent trips through the mills under competent guidance and the establishment within the industry of a bureau of research which, he felt, would provide a ready means in the correction of many erroneous ideas now held with regard to what the producers could and should do, as well as about brands of sheet steel.

Selling Seconds as Primes

A paper on "Galvanized Sheet Seconds," prepared by M. C. Summers, president, Thomas Sheet Steel Co., Niles, Ohio, and read by Severn P. Ker, Jr., general manager of sales of that company, contained several interesting suggestions on the problems created by seconds or wasters. There was much discussion of this paper, out of which grew a motion by G. H. Charls, vice-president and general manager, United Alloy Steel Corporation, that galvanized sheet seconds be branded as such, beginning as soon as this is practically possible. The motion was adopted unanimously. Thus, besides the guarantee to be provided by the "master brand" of the Sheet Steel Extension Committee, which cannot be stenciled on other than prime sheets, the consumer is to be further protected by the branding of seconds as such. This action was regarded as one of the real accomplishments of the entire three days' meeting.

Jacob Spolansky, formerly chief, Military Intelligence Branch, was the final speaker. He has had a wide and varied experience in connection with the efforts of the Government in the suppression of radicalism, as typified by the communists, I. W. W. and red socialists, and told in interesting fashion the international character of the movement that has for its aim the disestablishment of the existing common form of government. He recounted many thrilling incidents in connection with the work, and exposed the futility of trying to kill the radical movement through deportations or imprisonment, stating that the raiding of one meeting and the arrest of the participants would be followed by another meeting somewhere else within 24 hr. It was the speaker's idea that checking of radicalism is more feasible through education than through the activities of the governmental agencies, stating that many who fall prey to red doctrines and propaganda do so because there is no counter-effort in the shape of an active interest on the part of employers in the non-English speaking workmen who, more than the English speaking workman is impressed, because of his relative isolation in the general scheme of things. Mr. Spolansky warned that the radical movement is extremely virile, well financed and led by men of craft and cunning, and that it is not to be ignored but should be combatted and the best way is by making the non-English speaking workman feel he is just as important and has the same rights and privileges as his co-worker who speaks the national tongue.

W. S. Horner gave the benediction, with an expression of thanks to those who participated in and contributed to the program of the gathering, which he said could now be regarded as a permanent institution.

New buildings are being erected and new equipment is to be installed by the General Fireproofing Co., at its plant on Logan Avenue, Youngstown, to replace the company's paint and drying shop, recently destroyed by fire with an estimated loss of $75,000. The building was somewhat detached from the main plant and the flames kept in check. A considerable tonnage of finished stock was damaged by the fire.

Machinery Markets and News of the Works

OUTLOOK IMPROVES

Report Comes from Several Sources That Business Looks Better

Tangible Evidences of Improvement Are Hard to Point to, But Orders and Prospects Show Slight Increases

NOTWITHSTANDING some indefiniteness in the machine tool situation, the report is quite general that in the past week or two there has been an improved outlook which is indicated by an increase in the number of orders and inquiries. This does not mean that business is good, for on the whole it is rather poor in most sections of the country, but in such a condition any new signs are looked upon hopefully.

A good report comes from New England, which has suffered from depression to a greater extent perhaps than any other section. Sales are limited there, but better than they were a month ago. At Chicago considerable business is on the verge of being placed, among which are the extensive lists of the Illinois Central and Union Pacific railroads. Cincinnati machine tool builders are reported to feel that the outlook is more encouraging than it has been in weeks. One manufacturer says that the lists on which he is now bidding total more than $500,000. A sale of 15 turret lathes is the most important item from the Cleveland district.

New York

NEW YORK, May 12.

RAILROADS continue to show slightly more activity than other users of machine tools. There is a fair volume of inquiry from industrial consumers, but apparently no inclination to hasten purchases. The Amtorg Trading Corporation, 165 Broadway, New York, is reported in the market for several grinders for export to Russia. Among the railroads, the Atlantic Coast Line, which has closed on a 6-spindle, arch bar drill, has a list of tools pending, including two turret lathes, two engine lathes and a car box borer. Purchase by the Lehigh Valley Railroad, New York, of its list has been postponed indefinitely.

Purchases are reported in the past week to have been made by the New York Central of a 6-ft. radial drill; by the Mobile & Ohio, a 100-ton bushing press and by the F. A. Ringler Co., New York, a 54-in. x 8-ft. planer.

J. A. Deknatal Sons, Inc., 8 Hayward Avenue, Brooklyn, jewelry manufacturer, has plans under way for a three-story factory in the vicinity of Jamaica Avenue and 222nd Street, New York, 40 x 81 ft., estimated to cost $40,000. A. Schwartz, 103 Park Avenue, New York, is architect.

The Progress Ice Co., 874 Dean Street, Brooklyn, has plans for a two-story addition to its plant, 45 x 100 ft., estimated to cost $65,000 with equipment. Bly & Hamann, 551 Nostrand Avenue, are architects. A. D. Smith is president.

The American Superpower Corporation, operated by Bonbright & Co., 25 Nassau Street, New York, has arranged for a preferred stock issue of $2,325,000, a considerable portion of the proceeds to be used for the acquisition of electric light and power properties, and for extensions in plants and system. L. K. Thorne is president.

Mac L. Reiser, 1677 Pitkin Avenue, Brooklyn, architect, has plans under way for a two-story automobile service, repair and garage building, 108 x 128 ft., at Oakland Street and Greenpoint Avenue, estimated to cost $80,000.

The International Motors Co., 25 Broadway, New York, has awarded contract without competition to Philip Krug, Mineola, N. Y., for a two-story assembling plant on the Jericho Turnpike, Mineola, to cost $55,000 with equipment. It is understood that a subsidiary organization will be formed to operate the new works.

The New York Central Railroad Co., New York, has plans for the electrification of its Yonkers, N. Y., branch, Putnam Division, with power to be furnished from sub-stations. It has also plans for the electrification of its main line, Putnam Division, and of the Sawmill River branch line. Plans are under way for a one-story addition to its engine house and shop on West Seventy-second Street, near Tenth Avenue. G. W. Kittredge is chief engineer.

The New York Imitation Lime & Granite Stone Co., 1218 Oak Point Avenue, Bronx, New York, has filed plans for a one-story addition, 50 x 175 ft. Virgilio Biancata, company address, is architect.

The Cities Service Co., 60 Wall Street, New York, operating electric light and power properties in Ohio, Colorado, Missouri, Kansas and other states, is disposing of a new bond issue of $10,000,000, a portion of the proceeds to be used for expansion.

The Bushey Engineering Co., 110 East Forty-second Street, New York, has inquiries out for five dredges, bucket or suction type.

Emery Roth, 119 West Fortieth Street, New York, architect, has completed plans for a four-story automobile service, repair and garage building, 100 x 200 ft., at 1-17 East 102nd Street, to cost approximately $200,000 with equipment.

The American Locomotive Co., 30 Church Street, New York, has awarded a general contract to the Browne & Lowe Co., 16 Foster Avenue, Schenectady, N. Y., for a one-story addition to its Schenectady works comprising sand blast shop, tank paint shop, yard crane runway and miscellaneous expansion, estimated to cost $135,000 with equipment. R. H. White is construction superintendent.

The Department of Public Markets, Municipal Building, New York, E. J. O'Malley, commissioner, has awarded a building contract to the W. W. Construction Co., Inc., 15 West Fortieth Street, for a power house at Exterior and East 151st Streets to cost approximately $285,000 with equipment.

Officials of the Pan-American Petroleum & Transport Co., 120 Broadway, New York, have organized the Pan-American Western Petroleum Co. with 1,000,000 shares of capital stock, no par value. The new company will take over the oil refineries and oil properties of the first noted organization in California and other Western states, and will carry out an expansion program, including extensions to plants and the acquisition of other properties. Edward L. Doheny will head the new organization.

James S. Shattuck, Benson Building, Albany, N. Y., architect, has plans for a two-story automobile service, repair and garage building, 40 x 125 ft., to cost $40,000 with equipment.

The Denver Chemical Mfg. Co., 20 Grand Street, New York, has acquired property, 75 x 100 ft., at Varick and Charlton Streets, and plans the erection of a ten-story factory, to cost $1,000,000, with equipment.

The New York State Department of Public Works, Albany, N. Y., R. K. Fuller, commissioner of canals and waterways, will ask bids in the near future for new floating equipment for departmental service, including two steel tugs, equipped with Diesel engines and accessory apparatus; steel hull for a dredge, about 33-ft. beam and 90 ft. long; and three or more steel barges.

The Fred Engiemann Wagon Works, 90 Webster Avenue, Jersey City, N. J., is taking bids on a general contract for a one-story shop addition, 31 x 90 ft., to cost $30,000. William Neuman, 999 Bergen Avenue, is architect.

The General Motors Corporation, 224 West Fifty-seventh Street, New York, will use a portion of its plant at Grove Street and Bloomfield Avenue, Bloomfield, N. J., for the assembling of automobile parts for export. A unit containing about 142,078 sq. ft. of floor space will be remodeled. The branch will be used primarily for Chevrolet automobile parts, relieving the plant at Tarrytown, N. Y. The works comprises five other one-story plant units, with 28 acres of ground, and it is expected to place this property on the market.

Fire, May 4, destroyed a portion of the two-story building of the Passaic Bed Spring Mfg. Co., Passaic, N. J., with loss of $17,000 including equipment. It is planned to rebuild.

The Leger Co., 39 Riggs Place, South Orange, N. J., is in the market for a punch press, shaper, lathe, radial drill and screw machine.

The Forest Electric Co., Newark, N. J., has leased a portion of the building at 121-23 Sussex Avenue for a local works.

The Franco-American Precious Metals Corporation, affiliated with the Franco-American Products Co., 357 Mulberry Street, Newark, has awarded a general contract to the William C. Phelps Co., 21 Fulton Street, for three two-story buildings, 35 x 150 ft., and 35 x 50 ft., for a new plant to cost $90,000.

The Hasbrouck Gear Shift Corporation, 152 West Forty-second Street, New York, recently incorporated with $1,000,000 capital stock, will manufacture automatic gear shift transmissions. It is obtaining bids for manufacturing the product under contract, time of delivery being an important factor. J. R. Hasbrouck is president.

The Nielsen Rotary Motors Co., 171 Oakland Street, Brooklyn, has been incorporated with $100,000 capital stock to manufacture motors. It is still in the formative stage and manufacturing arrangements will be planned later. Peter F. Nielsen heads the company.

The Wel-Dun Electrical Mfg. Co., 17-23 West Sixtieth Street, New York, recently organized to manufacture baking utensils, will have castings made by contract, the company devoting itself to assembling processes. M. J. DeRoos is president.

The Urbain Corporation, 292 Madison Avenue, New York, has been incorporated with 1,100,000 shares of stock, no par value, to manufacture carbon products and to operate oil refineries. It is still in the organization stage and manufacturing plans are not available.

Buffalo

BUFFALO, May 11.

OFFICIALS of the Union Carbide & Carbon Co., 30 East Forty-second street, New York, and the Roessler & Hasslacher Chemical Co., 709 Sixth Avenue, New York, have organized the Niacet Chemicals Corporation, capitalized at $1,500,000, to manufacture industrial chemical products. Plans are under way for the initial works at Niagara Falls, N. Y., reported to cost $500,000 with machinery. It is expected to have the unit ready for service before the close of the year.

The Niagara, Lockport & Ontario Power Co., Lockport, N. Y., has closed negotiations for the purchase of the plants and system of the Bryant Power Co., Cambria Power Co., Western New York Electric Co., Seneca Transmission Co., Livingston-Niagara Power Co. and the Olean Electric Light & Power Co. The purchasing company will consolidate the different interests and has plans for extensions in the different districts, including the installation of additional equipment.

The St. Regis Paper Co., Watertown, N. Y., operating mills at Deferiet, Black River, Norwood and other points, is disposing of a preferred stock issue of $1,260,000, a portion of the proceeds to be used for extensions and betterments. The company controls the St. Regis Paper Co. of Canada, Ltd., which plans for mill expansion. R. B. Maltby is vice-president.

The Board of Education, Union School District No. 5, Syracuse, N. Y., J. Terry, 123 East Mauline Street, president, plans the installation of manual training equipment in its proposed two-story high school at East Syracuse, estimated to cost $200,000, for which bids are being asked on general contract. M. L. King, Snow Building, Syracuse, is architect.

The Syracuse Lighting Co., Syracuse, N. Y., has made application to construct an addition to its electric power plant for service at Hastings, West Monroe and Constantia.

The Hardinge Oil Heating Corporation, 868 Ellicott Square, Buffalo, has been organized to manufacture oil heating equipment. It will operate in conjunction with Hardinge Brothers, Inc., Chicago. Oil tanks and containers, as well as small accessories, will be required. Matthew Weimar is secretary.

Charles Tuttle, 151 Main Street, Brockport, N. Y., is in the market for a 20 or 25-hp. brick lined boiler with auxiliary equipment.

Electrically operated pumps and other equipment will be required by the Sinclair Oil Co., Salamanca, N. Y., for a gasoline and oil distributing station.

The Dunlop Tire & Rubber Co. of America will put into operation about June 15 a new operating unit, 120 x 562 ft. at its River Road plant, Buffalo, which will step up its production at least 4000 tires daily.

Transmission, conveying, hoisting and other equipment will be required for the addition to the plant of the New York Canners, Inc., Albion, N. Y., 100 x 400 ft.

The Crane Market

VERY little new inquiry is reported for either overhead or locomotive cranes. The Phoenix Utility Co., 71 Broadway, New York, has added a 10-ton hand power crane to its list, which includes a 100-ton and 125-ton. The seven locomotive cranes for the New York Central Railroad have not yet been awarded, but the ditchers were placed with the American Hoist & Derrick Co.

Among recent purchases are:

R. Hoe & Co., Dunellen, N. J., a 2-ton, 24-ft. 3-in. span, 2-motor crane; 2-ton, 17-ft. 6-in. span, 2 motor crane, and a 3-ton, 17-ft. 6-in. span, 2 motor crane from Alfred Box & Co.

Union Pacific Railroad, a 20-ton and 25-ton locomotive crane and a ditcher from the American Hoist & Derrick Co.

New York Central & Hudson River Railroad, four standard ditchers from the American Hoist & Derrick Co.

Chazy Marble Lime Co., Chazy, N. Y., a 20-ton locomotive crane from the Browning Co.

Oschokee Development Co., Oschokee, Fla., a 20-ton used Ohio locomotive crane from Philip T. King, 50 Church Street, New York.

Chevrolet Motor Co., Bloomfield, N. J., four 500-lb. electric hoists from the Shepard Electric Crane & Hoist Co. and a used locomotive crane from an unnamed dealer.

Philadelphia

PHILADELPHIA, May 11.

PLANS have been completed by the General Electric Co., Witherspoon Building, Philadelphia, for an addition to its No. 4 building at Sixty-ninth Street and Elmwood Avenue, to be equipped as a tank shop. It is estimated to cost more than $50,000 with equipment. Harris and Richards, Drexel Building, are architects.

The Adelphia Paper Box Co., American and Jefferson Streets, Philadelphia, has acquired a group of factory buildings at Columbia Avenue and Mascher Streets for $42,500 to be used for a new plant.

The American Oil Co., American Building, Philadelphia, has asked bids on a general contract for extensions and improvements in its oil storage and distributing plant at Amsbury and Fairhill Streets, to cost approximately $35,000, with tanks and other equipment. Lewis Blaustein is president.

A one-story power house, 30 x 40 ft., will be erected by John Zimmerman & Sons, Inc., 221 Lehigh Street, Philadelphia, in connection with additions to its textile mills to cost more than $100,000. The William Steele & Sons Co., 219 North Broad Street, is architect and engineer.

A one-story machine shop will be installed at the new plant of David Weber & Co., Fifth and Locust Streets, Philadelphia, manufacturers of paper boxes and containers, estimated to cost $190,000. A one-story steam power house will also be built. Contract for erection recently was let to the Robins Contracting Co., 1137 North Front Street.

The National Decalcomania Co., 240 North Sixtieth Street, Philadelphia, manufacturer of paper products, has awarded a contract to the George Kessler Contracting Co., 1733 North Marvine Street, for an addition to its factory.

The Schutte & Koerting Co., Twelfth and Thompson Streets, Philadelphia, manufacturer of valves and other engineering specialties, has awarded a general contract to H. E. Baton, Inc., 1713 Sansom Street, for extensions and improvements in its four-story factory. C. A. Blatchley, Drexel Building, is architect.

The Reading Railroad Co., Philadelphia, has awarded a general contract to the Fegles Construction Co., Minne-

apolis, Minn., for the construction of its proposed grain elevator at Twentieth Street and Pennsylvania Avenue, 45 x 74 x 160 ft., to replace a structure destroyed by fire some time ago. It is reported to cost $3,000,000 with machinery.

The City Commission, Trenton, N. J., is arranging an appropriation of $30,000 for extensions and improvements in the municipal machine shop, comprising the former building of the John E. Thropp Sons Co., manufacturer of machinery, recently acquired by the city.

The City Council, Camden, N. J., plans the construction of a number of pumping units in connection with a proposed sewage disposal plant and system, estimated to cost $2,338,000 with equipment. The city is required to build the plant under the State law. Remington & Vosbury, Camden, are consulting engineers.

Schmitt & Schroeder, Weitzenkern Building, East Main Street, Wilkes-Barre, Pa., architects, will soon ask bids for a one and two-story automobile service, repair and garage building, 130 x 154 ft., estimated to cost $125,000 with equipment.

Maderia, Hill & Co., Broad and Spruce Streets, Philadelphia, coal operator, have construction in progress on a new coal breaker at their Greenough colliery, Mount Carmel, Pa., to cost $425,000.

The Metropolitan Edison Co., Reading, Pa., is arranging for an increase in indebtedness from $20,000,000 to $50,000,000, the fund to be used for extensions and improvements in power plants and systems and the acquisition of additional power properties.

Manual training equipment will be installed in the two-story and basement senior high school to be erected at Market and Twenty-fifth Streets, Harrisburg, Pa., estimated to cost $1,200,000, for which revised plans are being prepared by Clayton J. Lappley, Ebner Building, architect.

William T. Bate & Son, Inc., Conshohocken, Pa., manufacturer of iron and steel castings, plumbing equipment, etc., has acquired the former plant of the Hummel Foundry Co. for the production of iron, steel, semi-steel and alloy steel castings. The plant has been inactive for several months and will be improved by the new owner and additional equipment installed. The company is also planning for extensions in its plumbing equipment works. The Bate organization was taken over recently by new interests headed by E. Lewis Gibbs and T. Holland Nelson.

The Fuller Lehigh Co., Fullerton, Pa., is inquiring for a second-hand locomotive, 30- to 45-ton capacity, standard gage, with four or six coupled drivers.

The Arthur S. Young Kinzer, Lancaster County, Pa., has been incorporated with $50,000 capital stock to manufacture farming machinery and supplies. It will also act as manufacturer's agent in these lines. Plant and equipment are complete for the present. Mr. Young is manager.

Frank Griffith, 420 Moyer Street, Philadelphia, is in the market for a 4- or 6-in. Landis pipe machine.

Detroit

DETROIT, May 11.

PLANS are under way by the Fisher Body Corporation, General Motors Building, Detroit, for an addition to its plant at Pontiac, Mich., to cost about $180,000 with machinery. It will also build a new one-story unit at its Detroit works to cost about $55,000.

The Upper Peninsula Products Co., Escanaba, Mich., will erect a new cold storage and refrigerating plant to cost about $50,000 with equipment. Westerland & Campbell, 113 Cornelia Avenue, Chicago, are engineers.

Fire, April 29, destroyed a portion of the plant of the Standard Machine Co., Owosso, Mich., manufacturer of mill machinery, with loss estimated at $50,000 including equipment. It is planned to rebuild.

The Martin-Parry Corporation, York, Pa., manufacturer of commercial automobile bodies, has leased the plant of the Dort Motor Car Co., Flint, Mich., as temporary works pending the rebuilding of its Flint factory, recently destroyed by fire, with loss approximating $175,000 including equipment.

The Ford Motor Co., Detroit, through its Canadian subsidiary, is organizing two new affiliated companies to operate in Australia. The first will be known as the Ford Mfg. Co. of Australia (Proprietary), Ltd., with headquarters at Geelong, where a plant will be established for the production of automobile bodies and certain motor parts. The initial unit will be one-story, totaling about 200,000 sq. ft., designed to give employment to more than 500. The other company will be the Ford Motor Co. of Australia (Proprietary), Ltd., with headquarters at the same location, to operate assembling plants throughout the country and handle sales work. Plans call for the erection of assembling plants at Geelong, Brisbane, Adelaide, Perth and Sydney. Both companies will operate with a capital of £1,500,000, sterling. L. W. Lee is general manager of the new organizations.

The Wilson Foundry & Machine Co., Pontiac, Mich., a subsidiary of the Willys-Overland Co., Toledo, Ohio, will proceed with the erection of a new four-story assembling plant and one-story additions to the motor testing works and boiler plant estimated to cost more than $1,200,000 with equipment. The extensions will be used exclusively for the production of engines for the Willys-Knight automobiles manufactured by the parent company and are expected to be ready for service early in the fall.

The D. J. Ryan Foundry, Co., Ecorse, Mich., is said to be planning to rebuild the portion of its foundry recently destroyed by fire, with loss approximating $30,000 including equipment.

Manual training equipment will be installed in the three-story and basement high school to be erected at Jackson, Mich., estimated to cost $1,200,000, for which plans are being drawn by Childs & Smith, 720 North Michigan Avenue, Chicago. L. H. Field, Jr., Peoples' National Bank Building, Jackson, is associated architect.

The Accurate Level Co., 8726 East Warren Avenue, Detroit, incorporated with $25,000 capital stock, will manufacture levels and other tools. It has a building under construction and expects to be established for operations by June 1. L. R. Connell is one of the officials.

The Hamilton Mfg. Co., Hamilton, Mich., has been organized to manufacture agricultural equipment. Operations are now under way. George Kaper is president and Jacob Eding vice-president.

C. A. Reynolds, 318 Dryden Building, Flint, Mich., is in the market for Osborn molding machines and other foundry equipment.

Work has been started on the construction of a plant, 50 x 100 ft., for the General Die Casting & Machinery Co., formerly a Chicago industry, which will now be operated at Benton Harbor, Mich., under the management of the Benton Harbor Malleable Iron Co.

New England

BOSTON, May 11.

ALTHOUGH most local machine tool dealers complain of poor business, a perceptible improvement is noted in the general situation. Sales are limited, but are larger than a month ago. New tools figure to a far greater extent in transactions than heretofore, and many of the used tools being moved run into fairly large sums. Machine tool builders collectively are doing a little better, recent bookings by two Connecticut companies pulling up the average operations of the industry. One of the Connecticut concerns received good export orders from England, Italy and Brasil for small drill presses and other tools, while the other sold several lathes to automobile manufacturers.

Local sales reported the past week include a new Milwaukee milling machine, a No. 3 P & W die sinker with complete attachments, a No. 2 Consolidated press, and a New Britain automatic screw machine, all new tools; a large used radial drill, a motor-driven lathe costing about $2,000 and other less important used machines. Inquiry from New England shops is falling off, while that outside of New England is increasing. A Rochester, N. Y., inquiry calls for two No. 75½ Bliss or No. 57 Toledo geared trimming presses with side shear and 6-in. stroke; one 3 ft. x 36-in. J. & L. turret lathe, steel head, type; one 5-ft. or 6-ft. triple geared radial drill, American or Bickford; one 3½-in. or 4-in. horizontal boring mill, and one double crank press, 750 ton pressure, 72-in. to 84-in. between sides, all used equipment. The Whitman & Barnes Mfg. Co., Akron, Ohio, drills and reamers, wants a used Manville No. 5B hand feed thread rolling machine with oil pump, reservoir, etc., countershaft and finishing blank die.

A general contract has been awarded by the Maine Central Railroad for a one-story 100 x 100 ft. car repair shop at Waterville, Me. B. T. Wheeler, Portland, is engineer in charge.

Lockwood Greene & Co., Inc., 24 Federal Street, Boston, has awarded contract for a one and two-story, 91 x 135 ft. power and manufacturing plant for A. D. Ellis Mills, Inc., Monson, Mass.

A permit has been granted the American Abrasive Co., Westfield, Mass., for an addition to cost approximately $25,000. Details have not been made public.

Fire last week destroyed the factory of the N. D. Cass Co., Richville, Vt., toys, with an estimated loss of $100,000. It plans to rebuild as soon as possible.

James L. Shannon, Blake Mfg. Co., Springfield, Mass., brass and steel novelties, has purchased the plant of Victor Saw Works, Inc., Rowland Avenue, valued at approximately $135,000, which will be utilized for manufacturing purposes. It has been idle for several years.

The Moore Drop Forge Co., 115 Wason Avenue, Springfield, Mass., has taken out a permit to build a one-story addition.

The Burdette Chair Co., Keene, N. H., is said to be completing plans for rebuilding the portion of its factory recently destroyed by fire, estimated to cost $75,000 with equipment.

The Tarbell-Watters Co., Bridge and Chestnut Streets, Springfield, Mass., automobile accessories and equipment, has acquired adjoining property and plans the erection of an addition. H. L. Sprague, Springfield, is architect.

The Androscoggin Electric Co., Lewiston, Me., has arranged for a note issue of $500,000, a portion of the proceeds to be used for extensions in power plants and system.

The Electric Appliance Co., Watertown Avenue, Waterbury, Conn., has foundations in progress for its one-story addition, 30 x 75 ft., for which a general contract has been let to J. Daddona, 801 North Main Street. C. Jerome Bailey, Waterbury, is architect.

The Ideal Auto Sheet Metal Works, Inc., Hartford, Conn., will build a one-story plant at 146 Windsor Avenue, to be equipped primarily for repair service, estimated to cost $12.000.

The forge and blacksmith shop, cooperage shop, automobile service and garage building and other structures at the plant of the Narragansett Brewing Co., Cranston, R. I., were partially destroyed by fire May 1, with loss reported at close to $100,000 including equipment. Plans for rebuilding are under consideration.

The Turners Falls Power & Electric Co., Turners Falls, Mass., has plans for an addition to its automatic power substation at Chicopee, Mass., to cost about $35,000.

Wise & Upson, Hartford, Conn., have plans for a one-story woodworking plant and tool shop at 7 Forest Street, estimated to cost $10,000.

The Pocahontas Fuel Co., Board of Trade Building, Boston, is having plans drawn for a new storage and distributing plant at Portland, Me., to cost $150,000 with equipment. H. S. Adams, Ames Building, Boston, is architect and engineer.

The Halden Mfg. Co., Watertown, Conn., manufacturer of automobile sheck absorbers and kindred products, has arranged for the removal of its business to a building recently leased at Thomaston, Conn., where the capacity will be considerably increased.

The Northampton Gas & Electric Co., Northampton, Mass., will build a three-story addition to its electric plant, to cost about $50,000.

Fire, May 2, destroyed the machine and repair shop at the automobile service and garage building of Marcoux Brothers, Woonsocket, R. I., with loss to the complete works estimated at $80,000 Rebuilding is under consideration.

St. Louis

ST. LOUIS, May 11.

TENTATIVE plans are being considered by the Lilley Motor Co., Independence Avenue and Maple Street, Kansas City, Mo., for a three-story service, repair and garage building, 135 x 160 ft., to cost $150,000 with equipment. H. T. Lilley is president.

The Trenton Gas & Electric Co., Trenton, Mo., has plans under way for extensions in its power house to cost about $85,000 including additional equipment. The company is under the direction of the General Engineering & Management Corporation, 165 Broadway, New York.

The Bodine Pattern Co., St. Louis, manufacturer of metal and wood patterns, has leased a building at 1611 Cass Avenue, and will remodel for a new plant.

The Board of Education, Kansas City, Mo., plans the installation of manual training equipment in its proposed three-story and basement North East junior high school estimated to cost $375,000, for which a general contract has been let to the Patti Construction Co., Jenkins Building.

The Ashdown Light & Power Co., Ashdown, Ark., operated by the Texas Central Power Co., San Antonio, Tex., recent purchaser, has plans under way for rebuilding its power house and the installation of additional equipment.

The City Council, Steele, Mo., has rejected bids received for electric-operated pumping machinery, steel tank and tower of 75,000 gal. capacity, and other equipment for a sewage system. Revised plans will be drawn and new estimates of cost asked. A. C. Moore, Independence Building, Joplin, Mo., is engineer in charge. A. B. Rhodes is city clerk.

The Board of Education, Augusta, Kan., has awarded a general contract to the Wichita Construction Co., Wichita, Kan., for a two-story manual training school, 48 x 76 ft., to cost $37,000. S. S. Voigt, Bitting Building, Wichita, is architect.

R. H. Sanneman, Lee Building, Kansas City, Mo., architect, is completing plans for a three-story and basement automobile service, repair and garage building, 100 x 185 ft., to cost $200,000 with equipment.

The Empire Gas & Fuel Co., Blackwell, Okla., will soon begin the construction of a pipe line from Blackwell to Wichita, Kan., by way of Diyworth, Okla., estimated to cost $600,000. H. L. Montgomery is general manager.

The Waite-Phillips Co., Kansas City, Mo., is arranging for extensions and improvements in the plant of the Southern Oil Corporation, Roanoke Road and Thirty-second Street, and the installation of additional equipment to develop an output of 50,000 gal. storage and distributing capacity.

The City Council, Hinton, Okla., has preliminary plans for extensions in the municipal electric power house and the installation of additional equipment estimated to cost $30,000. The Benham Engineering Co., Gumbel Building, Kansas City, Mo., is engineer.

The Root Refineries, Inc., El Dorado, Ark., is planning the construction of a pipe line from the Smackover oil fields to handle about 15,000 bbl. per day. It is reported to cost in excess of $500,000 including pumping stations.

The American Metal Products Corporation, St. Louis, has been incorporated to manufacture radiator shields for automotive use. I. Kauffman is one of the principals.

Chicago

CHICAGO, May 11.

BUYING of machine tools has been light, but considerable business is on the verge of being placed. The Illinois Central and the Union Pacific will probably close against their extensive lists during the current week. Action on the Burlington and Santa Fe lists is less imminent. The Santa Fe has added inquiries for two turret lathes to its pending list. The Northern Pacific has entered the market for two 90-in. locomotive journal turning machines and the Rock Island wants a pulley wheel lathe. The expected list from the Chicago, Milwaukee & St. Paul has not yet been issued.

Among industrial buyers, the Hart Oil Burner Co., Peoria, Ill., has placed orders for six turret lathes, two milling machines, two engine lathes, four spindles of 20-in. drills and a punch press. Fairbanks, Morse & Co. have closed for one large and two medium-sized turret lathes for its Beloit, Wis., plant. The pending Rockford, Ill., and Grand Rapids, Mich., school lists are expected to be placed this week or next. The Nash Motors Co. continues to place a few machines from time to time, having closed for a crankshaft grinder during the week. It has not yet taken action on its cylinder department requirements.

The sale of the Pechstein Iron Works, Keokuk, Iowa, to A. W. Hulson, representing the Hulson Grate Co., Keokuk, has been confirmed by the District Court at Keokuk. The purchase consists of the building, real estate and all equipment, including machine shop, boiler and foundry equipment. The plant will be used in connection with the operations of the Hulson Grate Co., which manufactures grate bars for locomotives.

The Enterprise Iron Works, Albert Lea, Minn., manufacturer of gray iron, semi-steel, steel, bronze and aluminum castings, has been sold to D. A. Potter, heretofore a resident of St. Paul.

The Moline Boiler Works, Ninth Street and Railroad Avenue, Moline, Ill., has been purchased by M. J. Andrews

AN exhibit of a copy to the exact size of what is said to be the largest chill roll ever cast was made by the United Engineering & Foundry Co. in an exposition held under the auspices of the Canton Chamber of Commerce, Canton, Ohio, April 24 to May 2. Suspended above it was the smallest roll the company has built.

and will be operated by Mr. Andrews and Ray J. Olds, who will become a partner in the business. The new firm name of the company will be Andrews & Olds Boiler & Welding Co.

The Wabash Railroad has taken out a building permit for the construction of a boiler shop addition at Fort Wayne, Ind., to cost $31,000.

The Modern Machine Shop, which conducts a general machine shop and electric welding business at 23 East Harrison Street, Danville, Ill., will erect a new shop at 123 North Hazel Street, 40 x 150 ft., to cost $17,000.

The Arrow Mill Co., manufacturer of storage battery separators, 2326 South Western Avenue, Chicago, is having plans drawn by Sidney Minchin, Chicago, for a factory on Twenty-sixth Street near Kostner Avenue. The first unit will cost $75,000 and it is planned ultimately to build another unit equally as large.

The A. B. Dick Co., manufacturer of mimeograph and duplicating machines, 736-742 West Jackson Boulevard, Chicago, is receiving bids through Albert S. Alschuler, Chicago, on a seven-story and basement plant adjoining that location to cost $750,000.

The Wallace Brothers Waste Co., 1347 South Ashland Avenue, Chicago, is receiving bids through A. Epstein, Chicago, on a two-story factory, 50 x 125 ft., to cost $50,000.

The Piano Foundry Co., Piano, Ill., is enlarging its plant.

The Bassick Mfg. Co., 2638 North Crawford Avenue, Chicago, has awarded a contract for a one-story addition, 20 x 135 ft., to cost $7,500.

Arthur Beckwith, president Beckwith Iron Works, 540 West Seventy-ninth Street, Chicago, has purchased a tract, 150 x 800 ft., running from State Street to Indiana Avenue, adjacent to the Western Indiana Belt Line at Ninetieth Street. A fabricating shop to cost $75,000 will be erected soon.

The Chicago Insulated Wire & Mfg. Co., North California Avenue, Sycamore, Ill., has awarded a general contract to B. J. Nelson, 560 DeKalb Avenue, for a one-story addition, 90 x 100 ft., to cost $75,000 with equipment.

Leichenko & Esser, 38 South Dearborn Street Chicago, architects, have plans for a two-story automobile service, repair and garage building, 125 x 150 ft., estimated to cost $300,000 with equipment.

The Central Illinois Public Service Co., Springfield, Ill., is disposing of a preferred stock issue of $616,000, a portion of the proceeds to be used for extensions and improvements.

The Iowa Southern Utility Co., Burlington, Iowa, is planning the construction of a one-story steam-operated power plant, 50 x 150 ft., to cost close to $150,000.

The Nehring Electric Works, Inc., DeKalb, Ill., is said to have tentative plans for a two-story addition on Locust Street. A. E. Nehring is president.

Following the purchase of the Clinton Gas & Electric Co., Clinton, Iowa, by the Interstate Power Co., Dubuque, Iowa, a subsidiary of the Utilities Power & Light Corporation, Dubuque, the parent company is planning the construction of a new super-power plant at Clinton to cost more than $1,000,000, and is also considering the enlargement of the present plant at Dubuque and conversion to a station of super-power type. The company recently disposed of a bond issue of $2,500,000, a portion of the fund to be used for expansion.

The F. J. Moore Sheet Metal Works, 1804 Washington Avenue, Minneapolis, Minn., contemplates the erection of a new plant to cost about $25,000 with equipment.

The Common Council, Bloomfield, Neb., is contemplating the construction of a municipal electric light and power plant to cost $50,000. A bond issue will soon be arranged. H. L. Cory, Bloomfield, is engineer.

The Whiting Corporation, Harvey, Ill., is inquiring for a second-hand turret lathe, 20-, 22- or 24-in., equipped for heavy chucking.

The Samuel Goldberg Co., 8512 Vincennes Road, Chicago, is inquiring for a 10- to 15-ton overhead traveling crane, 80-ft. span.

Heating Systems, Inc., 1803 Washington Avenue, North, Minneapolis, has been incorporated to manufacture heating equipment. It has a plant and equipment. D. A. Brunett is president.

Cleveland

CLEVELAND, May 11.

THE Hercules Gas Engine Co., Evansville, Ind., the past week purchased 15 turret lathes from a Cleveland manufacturer, with one exception, all being large machines. The city of Cleveland divided five machines on its recently issued list among local dealers. Generally, the volume of business is about the same as in recent weeks. Orders for the most part are for single machines. Some manufacturers have a good volume of business in prospect and expect sales during May to fully equal those in April.

The Colonial Iron Works Co., Cleveland, has purchased a two-acre site at St. Clair Avenue and East 176th Street, on which it will erect a plant within the next few months or when its present lease expires. It will be 120 x 400 ft. The company is engaged in fabricating special plate work but will extend its activities to fabricating steel for small buildings.

The Broden Construction Co., Cleveland, has moved into a new plant at 10255 Harvard Avenue which provides a large capacity and room for further expansion. A siding from the Wheeling & Lake Erie Railroad gives improved shipping facilities. Some additional machine tool equipment has been installed. The company manufactures wire mill and cold rolling equipment. G. A. Broden is president and B. F. Hewitt is secretary and treasurer.

The Mansfield Electric Hardware Co., Mansfield, Ohio, has been incorporated with a capital stock of $100,000 to carry on the business that has been conducted under the same name but which has never been incorporated. There will be no change in the management. It manufactures switch boxes, cut-out boxes and specialties in steel stampings.

The Sabin Machine & Tool Co., 6511 Cedar Avenue, Cleveland, has awarded the general contract to John Grant & Son for a three-story factory, 45 x 90 ft.

Alfred W. Reiser, 129 Huron Street, Toledo, Ohio, is having plans prepared for a three-story and basement factory, 40 x 100 ft., for the manufacture of electric fixtures.

Manual training department will be provided in a high school to be built in New Lexington, Ohio; C. R. Ridenour is clerk of the Board of Education. The city of South Charleston, Ohio, will build a high school with a manual training department; Floyd A. Barnamm is clerk of the Board of Education.

The city of Vermillion, Ohio, is having plans prepared for additions to its filtration plant. Centrifugal pumps and other equipment will be required.

A. A. Kersting, Ottawa, Ohio, operating an automobile agency and service station is in the market for a cylinder reboring machine, small lathe, drill press and other equipment for a proposed building.

Fire, May 2, destroyed the power house, blacksmith shop and fan house of the Leesburg Gas Coal Co., Leesburg, Ohio, with a loss of $25,000. Plans for rebuilding are under consideration.

C. H. Hulme, 1924 East 105th Street, Cleveland, is inquiring for two No. 16 Blanchard surface grinders, three No. 2B Kearney & Trecker horizontal plain millers and two No. 3 Cincinnati vertical millers.

The Canton Bridge Co., Canton, Ohio, is considering the construction of a new steel fabricating plant at New Philadelphia, Ohio. G. C. Hines is president.

Cincinnati

CINCINNATI, May 9.

AN improvement in sales and inquiries is noted in the local machine tool market. Although the increase in orders is not large, builders feel that the outlook is more encouraging than it has been for a number of weeks. Orders continue principally for single machines. Several railroads placed a small volume of business the past week, and two Detroit automobile manufacturers bought machine tools locally. Inquiries show more life. One manufacturer stated that the lists he is now bidding on total more than $500,000. Prospective business from the general industrial field is increasing. Used machinery sales have been fair the past two weeks.

The Cincinnati Shaper Co. booked an order for 10 shapers from a Detroit automobile manufacturing company. Sales of shapers are slightly better than they have been for a number of weeks. Planer manufacturers report production moderate, with sales showing a gradual improvement. Sales of drills have been fair. The Florida & Western Railroad placed an order here for two drills the past week. A Pacific Coast railroad also purchased a drill from a local manufacturer. The demand for lathes is spotty, with orders confined to single machines. Production of milling machines is a little better than during April. Several orders for boring mills were received by local builders the past week.

The Middle West Utilities Co., Chicago, has purchased the Noblesville, Ind., water plant and will equip the power house with modern electrically driven machinery.

The City Council, Madisonville, Ky., has authorized the Madisonville Board of Public Works to construct a pumping station to supply the town with water. The station will be located at Earlington, Ky.

The Fyr-Fyter Co., Dayton, Ohio, is planning the erection of a factory building. Roscoe Iddings is president.

The Johnson Mfg. Co., Urbana, Ohio, manufacturer of ash cans and other metal products, is said to be planning the erection of a one-story addition. C. Johnson is head.

Fire, May 4, destroyed a portion of the plant of the Winslow Glass Co., South Columbus, Ohio, manufacturer of bottles and hollowware, with loss estimated at $150,000 including equipment. It is planned to rebuild.

The City Council, Marion, Ky., plans extensions and improvements in the municipal waterworks to cost about $50,000, including the installation of engine, pumping equipment, air lifts and other power equipment. Howard K. Bell, Hernando Building, Lexington, Ky., is engineer.

Fire, April 29, destroyed the building at Memphis, Tenn., occupied jointly by the J. N. Gray Metal Co., Gwinner-Mercere Metal Co., Pittsburgh Plate Glass Co., and the Tennessee Oil Heating Co., with loss estimated at $200,000 including equipment, divided among the different companies.

The National Recording Pump Co., Kiser and Pennsylvania Avenues, Dayton, Ohio, has awarded a general contract to J. E. Lowes, Dayton, for an addition to its plant to cost about $30,000 with equipment.

The Eureka Auto Storage Co., 241 Walnut Street, Cincinnati, has awarded a contract to the Hodges-Erwin Co., Cincinnati, for a one-story service, repair and garage building to cost $125,000 with equipment. Rendigs, Panzer & Martin, Cincinnati, are architects.

The Annette Mines Co., Chattanooga, Tenn., recently formed with a capital of $200,000, has plans under way for the construction of a gold-mining plant on a 500-acre tract on Coker Creek, lately acquired, estimated to cost $50,000 with equipment. Fred B. Frazier, Volunteer Life Building, is one of the heads of the company.

The H. D. Denscher Co., Seventh and Monroe Streets, Hamilton, Ohio, has plans for a one and two-story addition to its foundry, 23 x 60 ft., to cost $27,000. George Barkman, Reily Building, is architect.

The Dixie Furnace Lining Co., Jackson, Tenn., has been organized to manufacture refractories. It is renting space and equipment from the Jackson Clay Products Co. and will specialize in plastic furnace lining. A. T. Leahy is one of the officials.

Indiana

INDIANAPOLIS, May 11.

A ONE-STORY power plant addition, 40 x 55 ft., will be constructed by the Dugger-Van Zant Packing Co., Tipton, Ind., in connection with a two-story extension to its packing plant, for which plans have been drawn by the Russell N. Edwards Co., Union Trust Building, Indianapolis. The entire project will cost approximately $70,000.

The Board of Education, Wabash, Ind., will build a vocational shop in connection with a new high school group to cost about $400,000, for which bids have been taken on a general contract. J. Edwin Popf & Woolling, 402 Indiana Pythian Building, Indianapolis, are architects.

The Northern Indiana Gas & Electric Co., Hammond, Ind., is planning the construction of an automatic power substation at Michigan City, Ind., with initial capacity of 15,000 kw. The work will be carried out in conjunction with a proposed steel tower transmission line in this section, to be built by the Calumet Power Co., an affiliated organization.

The Board of Education, Greencastle, Ind., is having plans completed for a one-story vocational building at the high school to cost about $80,000 including gymnasium department. McGuire & Shook, Indiana Pythian Building, Indianapolis, are architects.

The Zenite Metal Co., Indianapolis, has acquired control of patents for a steel and aluminum motor-driven clothes wringer, gearless type, and will establish a division at its plant for the manufacture. Equipment will be installed to provide for an initial output of about 6000 machines a month. Hiram M. Browne is general manager.

The Stickle Steam Specialties Co., 504 South Penn Street, Indianapolis, has filed plans for the erection of a new one-story factory, 60 x 150 ft., to cost approximately $23,000. Cole Stickle is president.

The Reliance Machine & Tool Co., Indianapolis, will operate a plant at the rear of 1141 West Thirtieth Street, where property recently was leased.

The Herr Seed Harvester Co., Columbus, Ind., has been organized to manufacture machines for harvesting clover seed. It has not determined plans for manufacturing yet, but will be in the market for steel wheels, bearings, hulling cylinders, hulling cylinder rasps, fans, screens, bucket conveyor, pulleys, belting, steel shaft, angle iron and sheet metal. Fred A. Eldean is secretary.

Gulf States

BIRMINGHAM, May 11.

WORK has begun on a new one-story plant, 100 x 150 ft., for the Magnus Co., Rio Grande and New York Avenues, Fort Worth, Tex., manufacturer of brass products, which will increase the present capacity about four times. The company plans the erection of a similar unit later.

Sanger Brothers, 1416 Marilla Street, Dallas, Tex., have preliminary plans for a five-story automobile service, repair and garage building, 100 x 100 ft., estimated to cost $100,000 with equipment. A site has been selected at Elm and Austin Streets. J. A. Pitzinger, Southwestern Life Building, is architect.

The Morgan Warehouse & Commercial Co., Dallas, Tex., has begun the construction of a cold storage and refrig-

erating plant in the vicinity of Houston and Caruth Streets to cost $100,000 with equipment. Samuel T. Morgan is president.

The Board of Aldermen, Church Point, La., is asking bids until May 19 for complete equipment for a municipal waterworks, including two crude oil engines, one motor-driven fire pump, one motor-driven domestic pump, one motor-driven air compressor, steel tank and tower, transformers and accessory apparatus, until May 20 for one complete ice manufacturing plant, two electric alternators with exciters and other miscellaneous apparatus. Swanson-McGraw, Inc., United Fruit Building, New Orleans, is engineer.

The Texas Laundry Machinery Co., 119 Starr Street, San Antonio, Tex., is considering the erection of a new plant for the manufacture of laundry machinery and parts estimated to cost $40,000.

The Common Council, Corpus Christi, Tex., is considering the installation of pumping machinery and accessories in connection with proposed extensions and improvements in the municipal waterworks estimated to cost $100,000.

W. M. Smith & Co., First Avenue, Birmingham, machinery dealer, has inquiries out for a locomotive crane, 15 to 20 tons capacity; also a scrap magnet, mushroom type, and one hydraulic scrap tin baling press.

The Kreiss Potassium Phosphate Co., Tampa, Fla., has begun the erection of a new plant for the production of potassium phosphate for fertilizer use. It will consist of a main unit, 65 x 528 ft., and a number of adjoining buildings, and is reported to cost $300,000 with machinery.

The Texas Central Power Co., San Antonio, Tex., operating the Laredo Electric & Railway Co., Laredo, Tex., has acquired the Laredo Water Co. and the Consumers' Ice & Fuel Co., both of the same place. Plans are under advisement for a new waterworks plant, with pumping machinery and auxiliary equipment. It is also contemplated to make betterments in the ice manufacturing plant and install additional machinery.

The Birmingham Engine & Machinery Corporation, Birmingham, has inquiries out for a vertical boring mill, standard manufacture, 24 in. x 16 ft.

The Florida Screen Mfg. Co., 2021 Gilmore Street, Jacksonville, Fla., will proceed with the erection of its proposed plant, two stories, 60 x 125 ft. The cost is reported in excess of $45,000 with machinery. W. B. Winfield is president.

The Lamb-Gary Lumber Co., Vicksburg, Miss., is considering rebuilding the portion of its mill in the Signal district destroyed by fire April 27 with loss of $100,000 including equipment.

Pittsburgh

PITTSBURGH, May, 11.

E. B. LEE, Chamber of Commerce Building, Pittsburgh, architect, has preliminary plans for a four-story automobile service, repair and garage building to cost more than $1,000,000 with equipment. A company is being organized to operate the property, headed by Charles K. Robinson, Union Trust Building.

Fire, May 7, destroyed the grain elevator, grinding, drying and other departments at the plant of the Mount Rock Flouring Mills, Lewistown, Pa., with loss estimated at $75,000 including machinery. It is planned to rebuild.

The West Penn Power Co., West Penn Building, Pittsburgh, is arranging for the early construction of a power dam at the State line, Cheat River, near Point Marion, for hydroelectric power development. This will be the first unit in a series of such dams to cost in excess of $4,000,000.

The Mitchell-Gleason Motor Co., Inc., 250 South Euclid Avenue, Pittsburgh, will soon ask bids for the erection of its proposed three and one-half story and basement service, repair and garage building, 150 x 250 ft., to cost $130,000 with equipment. M. Nirdlinger, Empire Building, is architect.

The McDonald File & Steel Co., McDonald, Pa., has awarded a general contract to J. B. Masquelier, McDonald, for the erection of its plant, one story, 140 x 195 ft., to cost $100,000 with equipment. Frank McCrooks, 541 Third Avenue, Pittsburgh, is architect. W. S. Lockhart heads the company.

The Board of Education, Morgantown, W. Va., plans the installation of manual training equipment in its group of three high school buildings, to cost in excess of $650,000, for which bids will be received on revised plans until June 16. Edward B. Lee, Chamber of Commerce Building, Pittsburgh, is architect.

Alfred Roberts, Pittsburgh, Pa., has leased a building at 7812-14 Hamilton Avenue, and will establish a new plant for the manufacture of propellers for airplanes and kindred products.

The Gilbert-Davis Coal Co., Morgantown, W. Va., has tentative plans for rebuilding three tipples at its properties, recently destroyed by fire with loss of about $150,000 including machinery. E. H. Gilbert is president.

Milwaukee

MILWAUKEE, May 11.

SO far, the month of May has brought out the usual run of small orders for machine tools, but business lacks substance and inquiry is hardly as active as it has been since Jan. 1. While automotive industries are placing some orders, this business is limited to a few large producers, the foremost buyer being the Nash interests for the Kenosha, Racine and Milwaukee works. Most users of machine tools are not in immediate need of greater capacity and are content to make only the most needed replacements. The city of Milwaukee is closing May 15 on one planer for the water department, and is expected soon to call bids on a considerable list of equipment for the machine shop of the new Jones Island sewage disposal plant.

The Leathem D. Smith Stone Co., Sturgeon Bay, Wis., plans the purchase of a 300-ton power shovel with 7-yd. dipper and standard gage car equipment for its quarrying plant. A 10-in. reduction crusher, with 100-hp. motor is now being installed. The capital stock has been increased from $200,000 to $650,000, consisting of $250,000 common stock and $400,000 preferred stock, and of the latter $142,000 will be marketed immediately to finance the improvement. Leathem D. Smith is president and general manager.

The Faultless Protection Co., Madison, Wis., a new $50,000 corporation organized by John Peterson, Frank A. Pearl and Charles A. French, will engage in the manufacture of household safety appliances and other metal specialties. Until it can erect its own plant, the production will be done under contract with the Capital Plating & Machine Co., 1900-1906 Division Street, Madison.

L. K. Spannbauer, 83 North Main Street, Oshkosh, Wis., has acquired the former Luhm cold storage plant at Ceape and State Streets, and will rebuild it and install equipment for general custom machine work, automotive service and repairs.

The Waukesha Silurian Spring Co., Waukesha, Wis., has plans by H. C. Haeuser, architect, 445 Milwaukee Street, Milwaukee, for a $50,000 addition, 60 x 116 ft., two stories and basement, to its spring water bottling plant, which will require considerable special machinery, conveyors, etc.

The Milwaukee Woven Wire Works, Thirtieth and Clark Streets, Milwaukee, has let the general contract to Charles Behnke, 827 Thirty-fourth Street, local, for an addition, 68 x 70 ft., part two stories and basement.

The Wisconsin Hardware Specialty Co., Madison, Wis., has been organized with $25,000 capital stock and will establish a factory to manufacture bottle capping devices. The incorporators, all retail hardware merchants, are O. B. James, Richland Center, Wis.; Roy Beat, Mount Horeb, Wis.; F. C. McKichan and Roy Bettinger, Plain, Wis.

Pacific Coast

SAN FRANCISCO, May 6.

THE Southern California Edison Co., Los Angeles, has authorized plans for a steel tower transmission line in Kern County, totaling about 100 miles of double towers, estimated to cost $2,500,000. Work will begin in July.

Plans are being completed by the Robert-Morton Organ Co., Van Nuys, Cal., for a new one-story plant, totaling 45,000 sq. ft. of floor space, and adjoining structure, 100 x 100 ft., to cost $200,000 with machinery. William A. Schiller, Berkeley, Cal., is architect. H. P. Pratt is factory manager.

Thomas Burns, 1101 Railroad Avenue, Bellingham, Wash., has awarded a general contract to Charles F. Harris, 2417 Meridian Avenue, for a one-story machine shop at 1105 Railroad Avenue, estimated to cost $15,000 with equipment. T. F. Doan, Sunset Building, is architect.

Fire April 29, destroyed a portion of the main mill of the Oakland Shingle Co., Edmonds, Wash, with loss estimated at $65,000 including machinery. It is planned to rebuild.

The Standard Wire Fence Co., Oakland, Cal., has awarded contract to H. J. Christensen, 505 Seventeenth Street, Oakland, for a one-story plant, saw-tooth roof,

140 x 200 ft., to cost close to $45,000. R. Vane Woods, 505 Seventeenth Street, is engineer.

The Davenport Mfg. & Implement Co., 1032 East First Street, Los Angeles, will erect new works, consisting of a main one and two-story building, 90 x 150 ft., and six smaller structures, including foundry, assembling and erecting plant, woodworking shop, etc., to cost $150,000 with equipment. It is purposed to begin work in July. R. M. Davenport is head.

H. L. Gilbert, Couch Building, Portland, engineer, representing power interests in this section, has applied for permission to construct and operate a hydroelectric power plant on the Lewis River, near Kelso, Wash., with capacity of 50,0000 hp.

The Corinne-Simpson-Wilson Co., 4701 University Way, Seattle, is having plans completed for a five-story automobile service, repair and garage building to cost $100,000 with equipment. Charles H. White, 6827 Seventeenth Avenue, is architect.

The Los Angeles Gas & Electric Corporation, 810 South Flower Street, Los Angeles, has plans nearing completion for a three-story and basement building, 65 x 230 ft., to include electric construction and repair shops, meter department, etc., to cost $200,000 with equipment. Work will begin this month.

The Barker Front Drive Corporation, Los Angeles, has been organized with $1,000,000 preferred stock and 10,000 shares of common stock to manufacture automotive vehicles and accessories. A lot containing 75,000 sq. ft. on San Fernando Road in Glendale has been purchased and a plant will be constructed as soon as possible. Aside from making a new front drive, it is likely that the company will build automobiles and possibly trucks. In building vehicles the company will make use of standard equipment and will soon be in the market for automotive units and machinery needed in assembling and manufacture. Temporary address is in care of the Herbert A. Faulkner Co., 422 Marsh Strong Building, Los Angeles.

South Atlantic States

BALTIMORE, May 11.

OFFICIALS of the Davison Chemical Co. and the Silica Gel Corporation, Garrett Building, Baltimore, affiliated organizations, headed by C. Wilbur Miller, president, are interested in the formation of two new corporations to establish plants for the manufacture of refrigerating machines.

The Baltimore Spring Bed Co., 754 West Pratt Street, Baltimore, has awarded a general contract to the Consolidated Engineering Co., 20 East Franklin Street, for its four-story addition, 38 x 150 ft., to cost $45,000. J. Lester Barr, 2700 North Charles Street, is architect and engineer.

Fire, May 6, destroyed the finishing mill and power house at the plant of the Pioneer Hardwood Flooring Co., Orangeville, Md., with loss estimated at $125,000 including machinery. Rebuilding plans are being considered. Charles J. F. Steiner heads the company.

Following the purchase of the plant and system of the Rocky Mount Light & Power Co., Rocky Mount, Va., by the Appalachian Power Co., Bluefield, W. Va., plans are being considered for extensions in the power station, including the installation of a turbine engine and accessory equipment.

The Modern Homes Co., P. O. Box 1537, Washington, is planning the purchase of woodworking tools, including handsaw, joiner, molder, etc.

The Board of Education, Hagerstown, Md., plans the installation of manual training equipment in its proposed three-story and basement high school estimated to cost $250,000, for which bids will be asked soon on a general contract. A. J. Klinkhart, 54 West Washington Street, is architect.

The City Council, Harrisonburg, Va., has authorized a fund of $75,000 for an addition to the municipal electric light and power plant, including the installation of a 1000-kw. generating unit and auxiliary machinery.

The Brighton Mills, Inc., Passaic, N. J., plans the construction of a power house at its proposed mill for the manufacture of tire fabrics on site at Rome, Ga., reported to cost $300,000. J. E. Sirrine & Co., Greenville, S. C., are architects and engineers.

The Gold Dust Corporation, 239 West Thirtieth Street, New York, manufacturer of washing powders, etc., has awarded a general contract to the Consolidated Engineering Co., 20 East Franklin Street, Baltimore, for its two and three-story plant in the Canton section, Baltimore, estimated to cost $1,000,000 with machinery. A power house will be constructed and a machine shop installed. Lockwood, Greene & Co., 100 East Forty-second Street, New York, are architects and engineers.

The Norfolk & Western Railway Co., Clyde Cocke, purchasing agent, Roanoke, Va., is asking bids until May 20 for 4000 wrought steel wheels, contract serial No. AA-354, and for 1200 sheets jacket steel, contract serial No. AA-355.

The Page Power Co., Luray, Va., is said to have plans under way for a steam-operated electric power plant for auxiliary service, installation to include a 2200-hp. generating unit and accessory machinery.

The Hackley Morrison Co., Inc., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a 100-hp. waterwheel; one 75 to 100-kw. alternator, three-phase, 60-cycle, 2300-volt, with exciter, switchboard and accessories; a number of motors, slip ring type, 50 hp., 25 hp., 20 hp. and 5 hp.

Haley, Chisholm & Morris, National Bank Building, Charlottesville, Va., contractors, have inquiries out for a six-jack locomotive hoist, Whiting type, 300 tons capacity.

The Auto Rental Co., Charles and Twentieth Streets, Baltimore, has awarded a general contract to John H. Kelly, 4210 Harford Avenue, for a two-story service, repair and garage building, 55 x 200 ft., to cost $60,000. E. H. Weedon, Jr., is president.

The City Council, Lagrange, Ga., plans the purchase of deep well pumping equipment. G. H. Sargent is city engineer.

The Atlantic Coast Line Railroad Co., Wilmington, N. C., is contemplating the establishment of a new scrap reclaiming plant. It is likely that a site will be selected in the vicinity of Savannah, Ga. J. E. Willoughby is chief engineer.

The City Council, Woodstock, Va., plans the installation of pumping machinery in connection with a proposed municipal waterworks, for which a bond issue of $100,000 is being arranged.

Fire, May 6, destroyed the plant of the Pioneer Hardwood Flooring Co., Eighth Street and Ashland Avenue, Orangeville, Baltimore, with loss estimated at $100,000.

The Takoma Mfg. Co., 298 Willow Avenue, Takoma Park, Washington, has been organized to manufacture an automatic ventilating closet. Contracts will be let to manufacturers equipped for this line. A. H. Deike is president.

The Sutton-Osborne Supply Co., 125 Roberts Street, Asheville, N. C., has been organized to do a general jobbing business in mill, mine, railroad and contractors' equipment, of which large stocks will be carried. It will cover by direct representation the entire mountain area of western North Carolina. H. J. Sutton is president.

Canada

TORONTO, May 11.

INTEREST in the machine tool market was more pronounced the past week and sales show general improvement. In most cases, however, demand was for single tools. Other lines of equipment also have improved. The Canadian General Electric Co., has been awarded contract for electrical equipment for the new mill of the International Paper Co., at Three Rivers, Que., which will involve an expenditure of between $800,000 and $900,000. In addition to the better current demand future prospects also look more encouraging.

Foundations are going in for the new plant to be erected at Belleville, Ont., for the Massey Concrete Products Co., Chicago, where a site of 22 acres recently was bought. It is reported that considerable equipment has still to be purchased for the new works.

McColl Brothers, 114 Don Esplanade, Toronto, are calling for bids for structural steel, etc., for a new plant to be erected at a cost of about $750,000, to include tanks, stills, garage, boiler house, pump house, tail house, etc. Equipment tenders will be called later.

The Exide Batteries of Canada, Ltd., 153 Dufferin Street, Toronto, is building an addition to its works, which will shortly be ready for the installation of machinery.

Robert M. Selkirk, town clerk, Leamington, Ont., is receiving bids for improvements to a waterworks plant, including the purchase of new pumps.

Western Canada

Armstrong, Morrison Co., Ltd., Bower Building, Vancouver, B. C., has the general contract for the construction

of a grinder room for the Powell River Co., Vancouver, to be erected at Powell River, B. C., at a cost of $240,000.

The Consolidated Mining & Smelting Co. of Canada, Trail, B. C., will start work immediately on the erection of 500 ton mill at Moyie, East Kootenay, B. C.

The city of Regina, Sask., will spend $420,000 during the year on additions and extensions to public works, including the installation of another electric light and power unit, comprising a complete new turbine generator to cost $130,000.

Foreign

THE Finnish Water Power Department, Helsingfors, Finland, will take bids until Sept. 1 for two overhead electric traveling cranes, each with lifting capacity of 75 tons.

The State Electricity Commission of Victoria, Melbourne, Australia, is asking bids until June 15 for a quantity of bare, hard-drawn copper wire. Specifications are on file at the offices of the Bureau of Foreign and Domestic Commerce, Chicago, and Customs House, New York.

Ip Tak & Co., China Building, Hongkong, China, are desirous of getting in touch with manufacturers of semi-finished steel products, non-ferrous metals and chemical products.

The Foreign Trade Bureau, Philadelphia Commercial Museum, Philadelphia, has received the following inquiries: (43508) from Cot & Lostau, Goya 33, Madrid, Spain, desiring to get in touch with American manufacturers of machinery for the manufacture of enameled iron bathtubs and other enameled iron sanitary ware; (43524) from Sobrinos de Isquierdo & Compania, 20 Tetuan Street, San Juan, Porto Rico, wishing to get in contact with American manufacturers of iron and steel bars and sheets, nails, building paper, etc.; (43530) R. W. Lockie, care of the Westminster Bank, Ltd., Yeovil, England, wishing to get in contact with American manufacturers of ice machinery, marine engines, road-making machinery, paper bag-making machinery, printing machines, cigarette box-making machines and electric trucks; (43509) from L. Petit, 21 Rue Henri Monnier, Paris, 9, France, desiring to get in touch with American manufacturers of watering troughs, feed stalls, casts, wheels, water tanks and kindred agricultural and farm equipment.

Industrial Items

The National Smelting Co., Cleveland, has been appointed exclusive sales agent in the United States and Canada for aluminum sheets, strips and coils made by Lehmaier Schwartz & Co., Glendale, L. I. The Smelting company also manufactures aluminum ingots and alloys.

William Laidlaw, treasurer and manager of the Clark Tool Works, Inc., Belmont, N. Y., for the past five years, has bought the business and re-organized the company which will be known as William Laidlaw, Inc., manufacturing metal cutting band saws and special machinery. The original company was organized ten years ago by W. P. Clark, one of the founders of the Clark Brothers Co., maker of saw mill machinery.

The Industrial Works, Bay City, Mich., manufacturer of locomotive cranes and crane equipment, has opened two new district offices, one at 425 Whitney Central Building, New Orleans, in charge of John A. Abele, the other at 843-A Hurt Building, Atlanta, Ga., in charge of John J. Murphy. The company also has appointed four additional district sales engineers: Douglas J. Calder, Conway J. Neacy and M. J. Frankel, who have offices at the Chicago district office, 1051 McCormick Building, Chicago, and C. F. Delbridge, who will be located in St. Louis, Railway Exchange Building.

The Pennsylvania Foundry Supply Co., Liberty Building, Philadelphia, has been incorporated with $100,000 capital stock to take over a manufacturing plant and open branch warehouses in various centers. H. E. Mandel, secretary-treasurer of the company, will have full charge of the selling organization and plans a broad warehouse service. A large branch warehouse has been opened at York, Pa., where complete stocks of foundry supplies and equipment will be carried. Millard F. Carr, who has been in the foundry supply business for 20 years, will have supervision of the York warehouse. S. B. Wentz is president.

A consolidation of the Maxon Furnace & Engineering Co. with the Maxon Premix Burner Co., Muncie, Ind., under the name of the latter, has been effected. Personnel and facilities of both companies are retained. Branch offices have been established at 207 Fulton Building, Pittsburgh, and 1925 Harris Trust Building, Chicago. H. R. Maxon is president.

The Foundation Co., New York, has made a contract with the Great Western Power Corporation, for the development of a water storage project in the West. This is part of the Great Western corporation's $200,000,000 Feather River program in California. Lake Almanor in Plumas County, a large artificial power lake, will be enlarged. Immediate construction work involves the raising of the Big Meadows dam 46 ft. and lengthening it to 1250 ft. from 600 ft. The depth of the lake will be increased from 18½ to 45 ft. The outlet from the lake down the canyon, provides a series of power sites, the drop being about 4000 ft. in 70 mi. The Foundation Co. is transferring its working plant to the site and operations have been started.

The Halden Mfg. Co. has completed the removal of equipment from Watertown to Thomaston, Conn., where a plant has been leased. About 20 machinists are now employed in making shock absorbers.

Linton & Kolb, Inc., 1334 Rockland Street, Philadelphia, and Newark, N. J., has been organized as distributor of mechanical appliances purchased direct from the factory. Its activities will consist mainly of installation and distribution. George Myrick, Jr., is manager.

The business conducted prior to October, 1915, as the Reading Crane & Hoist Works, and from that date until July, 1924, as the Roeper Crane & Hoist Works, is now known as the Roeper Crane & Hoist Works, Inc., 1730 North Tenth Street, Reading, Pa. H. P. Roeper is president.

Trade Changes

The Pennsylvania Pump & Compressor Co., Easton, Pa., announces that James McGraw, Inc., Tenth and Carey Streets, Richmond, Va., has been appointed district representative in Virginia territory.

The Browning Crane Co. is the new name adopted by the Browning Co., Cleveland, maker of locomotive cranes and buckets. The change was made to suggest the company's specialty which it has manufactured for 25 years. The Browning plant and main offices are at 16226 Waterloo Road, and branch offices are maintained in New York, Philadelphia, Chicago and St. Louis, with sales agents in Portland, Los Angeles, San Francisco, Montreal, Birmingham, and London, England.

The Pittsburgh Supply Co., mill, mine and contractors' supplies, has moved from Ross and Water Streets to larger quarters at 435-37 Water Street, Pittsburgh.

The office of the Sullivan Machinery Co., Chicago, at Dallas, Tex., has been moved from the Western Indemnity Building, to Rooms 522-523 Santa Fe Building. David H. Hunter is manager.

Wheelock Lovejoy & Co., New York, has moved to the new Pennsylvania Building, Thirty-fourth Street between Seventh and Eighth Avenues.

The Chicago district sales of the Whiting Corporation, Harvey, Ill., in charge of R. S. Hammond, district sales manager, have been moved from 945 Monadnock Block to 1502 Railway Building, Chicago.

The New Jersey Machinery Exchange, 21 Mechanic Street, Newark, N. J., has moved to 2 Orange Street.

The American Wire Fence Co. has moved to larger offices in the Union Trust Building, 7 South Dearborn Street, Rooms 832 to 842, Chicago.

The Armand Weill Co., New York, has moved from 152 West Forty-second Street, to 299 Madison Avenue.

E. L. Murphy & Co., has moved from 327 South LaSalle Street to 2219 Tribune Tower, Chicago.

The American Tube & Pipe Bending Co., has moved from Cleveland, to its new plant at Mineral Ridge, Ohio.

The Foote Brothers Gear & Machine Co., Chicago, will be represented in Duluth and surrounding territory by the Arrowhead Sales Co., 227 Wabasha Street.

Donald G. Munroe has been appointed district engineer of the Koppers Construction Co., Pittsburgh, in charge of the New York office, 1750 Equitable Building, 120 Broadway.

The Wheeling Steel Corporation has changed offices from 1720 Oliver Building to Wheeling Steel Corporation Building, Wheeling, W. Va.

The York Insulated Wire Works of the General Electric Co. has changed address to Room 2446, Equitable Building, 120 Broadway, New York.

A. R. Brown, McFarlane & Co., Ltd., merchant in iron and steel scrap, 19 St. Vincent Place, Glasgow, has closed its New York office at 90 West Street. D. Inglis Short, who has been with the company for several years and acted as manager in New York from 1917, has established his own business and will handle the business of the Brown McFarlane company in the United States.

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE, under the general headings of "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

	Per Lb.
Bars:	
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base	7.00c. to 7.25c.
Soft steel bars, base price	3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.34c.
Channels, angles and tees under 3 in. x ¼ in. base	3.24c.
Steel plates, ¼ in. and heavier	3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.30c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.65c.
Toe-calk, ½ x ⅜ in. and larger	4.20c.
Cold-rolled strip, soft and quarter hard	7.00c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds and hex.	4.15c.
Squares and flats	4.65c.
Standard tool steel, base price	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	3.89c.
No. 12	3.94c.
No. 14	3.99c.
No. 16	4.09c.

Box Annealed—Black

	Soft Steel C. R. One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20	4.15c. to 4.40c.	.....
Nos. 22 and 24	4.20c. to 4.45c.	4.95c.
No. 26	4.25c. to 4.50c.	5.00c.
No. 28*	4.35c. to 4.60c.	5.10c.
No. 30	4.55c. to 4.80c.	.....

Galvanized

	Per Lb.
No. 14	4.45c. to 4.70c.
No. 16	4.60c. to 4.85c.
Nos. 18 and 20	4.75c. to 5.00c.
Nos. 22 and 24	4.90c. to 5.15c.
No. 26	5.05c. to 5.30c.
No. 28*	5.35c. to 5.60c.
No. 30	5.85c. to 6.10c.

*No. 28 lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe

Standard Weld	Black	Galv.	*Wrought Iron*	Black	Galv.
½ in. Butt	46	29	½ in. Butt	4	+19
¾ in. Butt	51	37	¾ in. Butt	11	+ 9
1-3 in. Butt	53	39	1-1½ in. Butt.	14	+ 6
2½-6 in. Lap	48	35	2-in. Lap.	5	+14
7 & 8 in. Lap	44	17	3-6 in. Lap.	11	+ 6
11 & 12 in. Lap.	37	12	7-12 in. Lap.	3	+16

Bolts and Screws

Machine bolts, cut thread, 40 and 10 per cent off list
Carriage bolts, cut thread, 30 and 10 per cent off list
Coach screws, 40 and 10 per cent off list
Wood screws, flat head iron, 72½, 25, 10 and 5 per cent off list

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER	Per Lb.
Bright, basic	4.25c.
Annealed, soft	4.50c.
Galvanized, annealed	5.15c.
Coppered, basic	5.15c.
Tinned, soft Bessemer	6.15c.

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	18⅛c. to 19⅛c.
High brass wire	18⅝c. to 19⅝c.
Brass rods	15⅞c. to 16⅞c.
Brass tube, brazed	26⅛c. to 27⅛c.
Brass tube, seamless	22¾c. to 23¼c.
Copper tube, seamless	23¾c. to 24¼c.

Copper Sheets

Sheet copper, hot rolled, 20¾c. to 21¾c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin		Coke—14 x 20		
	Grade "AAA" Charcoal 14x20	Grade "A" Charcoal 14x20		Prime	Seconds
IC	$11.25	$8.85	80 lb.	$6.15	$5.90
IX	12.85	10.85	90 lb.	6.30	6.05
IXX	14.40	12.55	100 lb.	6.45	6.20
IXXX	15.75	13.85	IC	6.65	6.40
IXXXX	17.00	15.05	IX	7.85	7.60
			IXX	9.00	8.75
			IXXX	10.35	10.10
			IXXXX	11.35	11.10

Terne Plates

8 lb. coating, 14 x 20

100 lb.	$7.00 to $8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire door stock	9.00 to 10.00

Tin

Straits, pig	57c.
Bar	60c. to 62c.

Copper

Lake ingot	16¾c.
Electrolytic	16½c.
Casting	16 c.

Spelter and Sheet Zinc

Western spelter	9c.
Sheet zinc, No. 9 base, casks	12c. open 12½c.

Lead and Solder*

American pig lead	8¾c. to 9¼c.
Bar lead	11c.
Solder, ½ and ½ guaranteed	39½c.
No. 1 solder	36½c.
Refined solder	30c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	75c. to 90c.
Commercial grade, per lb.	35c. to 50c.
Grade D, per lb.	25c. to 35c.

Antimony

Asiatic	16c. to 18c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.	36c.

Old Metals

The market is practically unchanged and business is slow. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	11.50
Copper, heavy wire	11.00
Copper, light bottoms	9.25
Brass, heavy	6.75
Brass, light	5.50
Heavy machine composition	8.25
No. 1 yellow brass turnings	8.00
No. 1 red brass or composition turnings	8.00
Lead, heavy	6.75
Lead, tea	5.00
Zinc	4.00
Cast aluminum	17.00
Sheet aluminum	17.00